FRANKLIN INSTITUTE LIBRARY
PHILADELPHIA, PA.

Class 621.3 Book T36 Accession 85451
Given by Mr. J. L. Houston

Digitized by the Internet Archive
in 2015

https://archive.org/details/reinforcedconcre00thom_1

REINFORCED CONCRETE DESIGN TABLES

McGraw-Hill Book Co. Inc.

PUBLISHERS OF BOOKS FOR

Coal Age ▽ Electric Railway Journal
Electrical World ▽ Engineering News-Record
Railway Age Gazette ▽ American Machinist
Electrical Merchandising ▽ The Contractor
Engineering & Mining Journal ▽ Power
Metallurgical & Chemical Engineering

REINFORCED CONCRETE DESIGN TABLES

A HANDBOOK
FOR
ENGINEERS AND ARCHITECTS
FOR USE IN DESIGNING

REINFORCED CONCRETE STRUCTURES

BY

M. EDGAR THOMAS
AND
CHARLES E. NICHOLS

First Edition
Second Impression

McGRAW-HILL BOOK COMPANY, Inc.
239 WEST 39TH STREET. NEW YORK

LONDON: HILL PUBLISHING CO., Ltd.
6 & 8 BOUVERIE ST., E. C.
1917

Copyright, 1917, by the
McGraw-Hill Book Company, Inc.

THE MAPLE PRESS YORK PA

PREFACE

This volume is a handbook intended to be used as generally by the reinforced concrete designer as the standard handbooks of the steel manufacturers are by the steel designer.

In order to insure the greatest usefulness no attempt has been made to influence or restrict the designer's ideas. The tables as presented cover a wide range of stresses and include those used by a majority of designers. Since all questions of assumption and method of design have been eliminated they can readily be applied to the design of any reinforced concrete structure. Furthermore, even though the designer may already have a complete set of curves or tables which fulfill his needs, this volume offers a quick and independent form of check which is very valuable in insuring accuracy of results.

The nucleus of this set of tables was started by the authors about ten years ago and was added to from time to time as their work required the consideration of varied unit stresses. The authors feel that this book will fulfill the purpose for which it is intended, because the tables have been tried out and the forms in which they are presented are the result of some years of development.

The necessity for a wide range of stresses, due to the lack of a general standard such as has been agreed upon for structural steel, has made it impossible to introduce tables for various conditions of loadings, spans, etc., which can be determined by simple arithmetical or slide rule computations. Also it was thought inadvisable to confuse the arrangement of these tables by adding tables of logarithms, squares and cubes of numbers, etc., which are to be found in numerous other handbooks.

We wish to express our appreciation of the services rendered by F. O. Dufour, D. A. French, W. L. Beckett and others in the working up and checking over of various tables, together with valuable suggestions as to arrangement of the book as a whole. Also to make acknowledgment to Louis F. Brayton,

85451

author of "Brayton Standards," for advice and assistance in the development of early tables of which this book is the result. Further acknowledgment should be made to existing text-books, such as "Concrete, Plain and Reinforced," by Taylor and Thompson, and "Reinforced Concrete Construction" by Hool, the tables of which were carefully studied, resulting in a similar arrangement of certain tables in this volume.

While a great deal of time and care has been spent in computing and checking these tables the authors realize the possibility of some errors having remained undetected and will greatly appreciate having their attention called to such as may be found.

THE AUTHORS.

BOSTON, MASS.,
January, 1917.

CONTENTS

PAGE.

PREFACE v

NOTATION AND FORMULÆ. 1

EXPLANATION OF TABLES. 4

TABLES OF COEFFICIENTS FOR SLABS AND SIMPLE BEAMS
R, p, k, and j values for $n = 15$, $n = 12$ 14

LOGARITHMIC CURVES
R, p, k, and j values for
$n = 15$. 18
$n = 12$. 19

TABLE OF BENDING MOMENTS AND SHEAR FOR CONTINUOUS BEAMS. 20

WEIGHTS, AREAS AND SPACING OF BARS 21

WEIGHTS OF CONCRETE MEMBERS IN POUNDS 22

TABLES OF SLABS AND SIMPLE BEAMS
$f_s = 16{,}000$
$f_c = 450, 500, 550, 600, 650, 700, 750, 800$ $n = 15$ 25
$f_c = 650, 700, 750, 800$ $n = 12$. 33
$f_s = 18{,}000$
$f_c = 650, 700, 750, 800$ $n = 15$, $n = 12$. . . . 37
$f_s = 20{,}000$
$f_c = 650, 700, 750, 800$ $n = 15$, $n = 12$. . . . 45

TABLES OF TEE BEAMS
Thickness of slabs 2″, 2½″, 3″, 3½″, 4″, 4½″, 5″, 5½″, 6″, 6½″, 7″, 7½″, 8″, 9″
$f_s = 16{,}000$
$f_c = 450, 500, 550, 600, 650, 700, 750, 800$ $n = 15$. 53
$f_c = 650, 700, 750, 800$ $n = 12$ 79
$f_s = 18{,}000$
$f_c = 650, 700, 750, 800$ $n = 15$, $n = 12$. . . . 92
$f_s = 20{,}000$
$f_c = 650, 700, 750, 800$ $n = 15$, $n = 12$. . . . 118

PAGE.

TABLES OF BEAMS WITH COMPRESSION REINFORCEMENT
f_s = 16,000, 18,000, 20,000
f_c = 650, 700, 750, 800, 900, 1,000, 1,100, 1,200
n = 15 d' = 2″ 144
n = 15 d' = 3″ 147
n = 12 d' = 2″ 150
n = 12 d' = 3″ 153

SQUARE COLUMNS
Unreinforced
f_c = 400, 450, 500, 550, 600, 650, 700, 750 . . . 156
Reinforced
f_c = 400, 450, 500, 550, 600 n = 15, n = 12. . 157
f_c = 650, 700, 750 n = 15, n = 12, n = 10 . . 172
Per cent. of Steel = ½, 1, 1½, 2, 2½, 3, 3½, 4, 4½

HOOPED COLUMNS
Unreinforced
f_c = 450, 500, 550, 600, 650, 700, 750, 800 . . . 184
Reinforced
f_c = 400, 450, 500, 550, 600 n = 15, n = 12. . 185
f_c = 650, 700, 750, 800 n = 12, n = 10. . . . 190
Per cent. of Hooping = ½, 1, 1½, 2

HOOPED COLUMN REINFORCEMENT
f_s = 8,000, 10,000 12,000, 14,000, 16,000, 18,000, 20,000, 22,000. 194
Per cent. of Hooping = ½, 1, 1½, 2

VERTICAL COLUMN REINFORCEMENT
f_c = 400, 450, 500, 550, 600, 650, 700, 750, 800, n = 15, n = 12, n = 10. 198

SPACING AND PERCENTAGES OF COLUMN HOOPING 201
Gages No. 4 to 7–0 Wire and Flat Bars

TABLE OF WEIGHTS, AREAS AND SPACING OF BARS . . . 209

REINFORCED CONCRETE DESIGN TABLES

NOTATION AND FORMULÆ

BEAMS

f_s = tensile unit stress in steel in pounds per square inch.
f_c = compressive unit stress in concrete in pounds per square inch.
E_s = modulus of elasticity of steel.
E_c = modulus of elasticity of concrete.
$n = E_s \div E_c$.
M = moment of resistance, or bending moment.
A_c = concrete area in square inches.
A_s = steel area in square inches.
b = width of beam.
d = depth of beam to center of steel.
k = ratio of depth of neutral axis to effective depth, d.
z = depth of resultant compression below top.
j = ratio of lever arm of resisting couple to depth, d.
$jd = d - z$ = arm of resisting couple.
p = steel ratio (not percentage).
b = width of flange of T-beams.
b' = width of stem of T-beams.
t = thickness of flange of T-beams.

BEAMS REINFORCED FOR COMPRESSION

(in addition to preceding notation)

A'_s = area of compressive steel.
p' = steel ratio for compressive steel.
f'_s = compressive unit stress in steel.
C = total compressive stress in concrete.
C' = total compressive stress in steel.
d' = depth to center of compressive steel.

COLUMNS

(in addition to preceding notation)

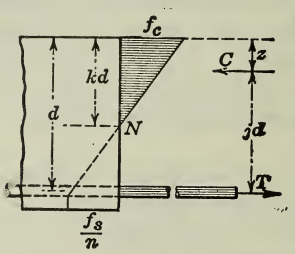
P = total safe load

P' = load due to vertical reinforcement.

P_s = load due to hooping.

p_s = ratio of hooping.

SLABS AND SIMPLE BEAMS



Position of neutral axis,

$$k = \sqrt{2pn + (pn)^2} - pn \qquad k = \frac{nf_c}{nf_c + f_s} \tag{1}$$

Arm of resisting couple,

$$j = 1 - \frac{1}{3}k \tag{2}$$

Steel ratio,

$$p = \frac{1}{2}\frac{1}{\frac{f_s}{f_c}\left(\frac{f_s}{nf_c} + 1\right)} \tag{3}$$

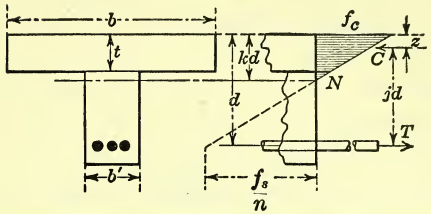
Fiber stresses,

$$f_s = \frac{M}{A_s jd} = \frac{M}{pjbd^2} \qquad f_c = \frac{2M}{jkbd^2} = \frac{2pf_s}{k} \tag{4}$$

If constant $R = f_s pj$, or $\frac{1}{2} f_c kj$ (5)

$$M = Rbd^2 \tag{6}$$

T-BEAMS



Case I.—When the neutral axis lies in the flange, use the formulæ for rectangular beams.

Case II.—When the neutral axis lies in the stem.

The following formulæ neglect the compression in the stem:

Position of neutral axis,

$$kd = \frac{2ndA_s + bt^2}{2nA_s + 2bt} \tag{7}$$

Position of resultant compression,

$$z = \frac{3kd - 2t}{2kd - t} \cdot \frac{t}{3} \tag{8}$$

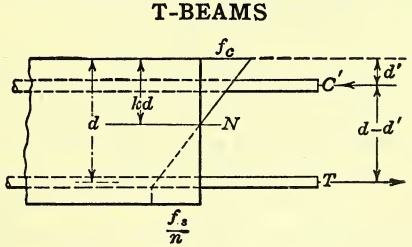
Arm of resisting couple,

$$jd = d - z \tag{9}$$

Fiber stresses,

$$f_s = \frac{M}{A_s jd}. \qquad f_c = \frac{Mkd}{bt(kd - \frac{1}{2}t)jd} = \frac{f_s}{n} \cdot \frac{k}{1-k} \tag{10}$$

COMPRESSION REINFORCEMENT IN SIMPLE AND T-BEAMS



Total compressive stress in steel,

$$C' = A'_s f_c(n - 1)\left(1 - \frac{d'}{kd}\right) \tag{11}$$

M (moment due to compression steel) $= C'(d - d')$ (12)

M (moment to balance compression steel) $= T(d - d')$ (13)

$= A_s f_s(d - d')$ (14)

COLUMNS

Square or rectangular columns,

$$P = f_c A_c[1 + p(n - 1)]. \quad (15)$$

$$P' = f_c A'_s(n - 1). \quad (16)$$

Hooped columns,

$$P = f_c A_c(1 + 2.4 p_s n) \quad (17)$$

$$P = f_c A_e + P_s = f_c A_c + 2.4 p_s A_c f_s = A_c(f_c + 2.4 p_s f_s) \quad (18)$$

EXPLANATION OF TABLES

General.—The straight-line formula is the basis of all beam tables in this book.

All of the beam and column tables give results in terms of the size of the concrete member and area of reinforcing steel required; so that any combination of any number, size and arrangement of bars may be made from the table on page 21, which has been reprinted as an insert[1] to be kept always exposed for constant reference.

The arrangement of the tables throughout is from the standpoint of designing members from previously determined moments or loads, rather than of investigating given designs to determine stresses. As shown by the examples their use in straight designing is very simple, but for investigating stresses it is necessary to search through several tables to find the exact conditions which will satisfy a given design.

This point should be noted in using any of the tables following: The depth of beams or slabs and the size of columns wherever mentioned mean the effective depth or size with no allowance made for fireproofing or other protective covering.

Table of Coefficients R, p, k and j, Pages 14 to 17 Inclusive.—These tables present the various coefficients which enter into the formulæ for computing slabs and simple beams and cover a wide range of stresses. The value of k is correct for both slabs, simple beams and tee beams. Values of R, p and j, however, apply only to slabs and simple beams.

Logarithmic Curves, Pages 18 and 19.—These are a graphical presentation of the coefficients on pages 14 to 17. They are principally of value in showing the inter-relation of the various

[1] See end of book.

coefficients, so that a more comprehensive idea is obtained of their relative importance and rate of variation. They also show values which are not within the range of the table of coefficients.

Table of Moments and Shear, Page 20.—This is a tabulation of the theoretical maximum positive and negative bending moment and vertical shear coefficients for continuous beams over various numbers of equal spans. A constant moment of inertia is assumed and equal loads uniformly distributed on each span. The moment coefficients are above the horizontal lines which represent beams and those for shear are below. In the left half of the table the coefficients are given as fractions while the decimal equivalents appear in the right half. It should be noted that the coefficients apply to the load on one span only.

Weights of Concrete Members, Pages 22 to 24.—These tables are useful in determining dead loads and assume the weight of reinforced concrete as 150 lb. per cubic foot.

Slabs and Simple Beams, Pages 25 to 52.—Slabs are wide simple rectangular beams of shallow depth; and they are generally treated as beams of a fixed unit width.

Examples:

Design a slab for the following conditions:

Bending moment $M = 2{,}600$ lb.-ft. per foot of width.

Working stresses $\begin{cases} f_s = 18{,}000 \text{ lb. per square inch.} \\ f_c = 650 \text{ lb. per square inch.} \end{cases}$

$n = 15.$

Referring to page 37, we find under a depth of $5\frac{1}{4}$ in. $M = 2{,}780$ and $A_s = 0.40$.

By direct ratio the area of steel required in this case for a depth of $5\frac{1}{4}$ in.

$$A_s = \frac{2{,}600}{2{,}780} \times 0.40 = 0.376 \text{ sq. in. per foot width of slab.}$$

Referring to page 21, we find that $\frac{1}{2}$-in. square bars spaced 8 in. apart give an area of 0.37 sq. in. per foot width of slab. If we add $\frac{3}{4}$ in. to the slab for protection of the steel we would then have a slab 6 in. thick reinforced with $\frac{1}{2}$-in. square bars 8 in. apart.

Design a beam of simple rectangular section for the following conditions:

Bending moment $M = 300{,}000$ lb.-ft.

Working stresses $\begin{cases} f_s = 16{,}000 \text{ lb. per square inch.} \\ f_c = 650 \text{ lb. per square inch.} \end{cases}$

$n = 15.$

Referring to page 29 and assuming a beam 12 in. wide to be satisfactory, we find the value nearest the requirements is $d = 53$ in. for which

$$M = 302{,}000 \text{ lb.-ft.},$$
$$A_s = 4.89 \text{ sq. in.}$$

The steel required in this case is, by direct ratio,

$$A_s = \frac{300{,}000}{302{,}000} \times 4.89 = 4.86 \text{ sq. in.}$$

Assuming a width of 16 in. as best suited to the conditions we find the moment per foot of width to be,

$$M = \frac{12}{16} \times 300{,}000 = 225{,}000 \text{ lb.-ft.}$$

The nearest value in the table is $d = 46$ in. for which

$$M = 227{,}000 \text{ lb.-ft.}$$
$$A_s = 4.24 \text{ sq. in.}$$

The steel required is, then,

$$A_s = \frac{300{,}000}{227{,}000} \times 4.24 = 5.60 \text{ sq. in.}$$

Assuming a fixed depth of $d = 42$ in. for which

$M = 190{,}000$ lb.-ft. per foot width,

$A_s = 3.88$ sq. in. per foot width,

we find by direct ratio the width and steel required

$$b = \frac{300{,}000}{190{,}000} \times 12 = 19 \text{ in.},$$

$$A_s = \frac{300{,}000}{190{,}000} \times 3.88 = 6.13 \text{ sq. in.}$$

T-beams, Pages 53 to 143.—In designing a T-beam the slab thickness is generally already determined by the conditions of loading, beam spacing, etc. Often the width of the compression flange is limited by a building code, specification, or by local conditions of openings in the floor adjacent to the beam under consideration.

The T-beam tables consider only the cases wherein the neutral axis lies below the slab and give only values for the compression area above the bottom of the slab, neglecting the compression in the beam stem between the bottom of the slab and the neutral axis. More accurate designing to consider this compression is readily done when necessary by combining the simple beam and T-beam tables as explained later. Use the simple beam tables when the neutral axis is at or above the bottom of the slab which is the case for depths smaller than those given in the T-beam tables.

Example (width fixed):

Design a T-beam for the following conditions:

M = 300,000 lb.-ft. f_s = 18,000 lb. per square inch.
Slab thickness = 6 in. f_c = 800 lb. per square inch.
n = 12.

Maximum width of compression flange = 4 ft. 0 in.

The moment per foot of width is,

$$M = \frac{300{,}000}{4} = 75{,}000 \text{ lb.-ft.}$$

Referring to page 112, we find that the depth which satisfies this moment is d = 26 in. for which

M = 75,400 lb.-ft.
A_s = 2.14 sq. in. } per foot width of beam.

By direct ratio we find the area of steel as follows:

$$A_s = \frac{300{,}000}{75{,}400} \times 2.14 = 8.52 \text{ sq. in.}$$

The width of the beam stem is determined by the arrangement of reinforcement used and the shear stresses.

Frequently the depth of a beam is fixed by clearance requirements or by a desire to simplify form construction by maintaining a constant beam size for a large number of typical beams.

Example (depth fixed):

Assume the conditions of the previous example with a fixed beam depth of 29 in. (effective).

Referring to page 112, we find that for d = 29 in. we have

M = 89,100 lb.-ft.
A_s = 2.25 sq. in. } per foot width of slab.

By direct ratio we have a width and steel required as follows:

$$b = \frac{300{,}000}{89{,}100} \times 12 = 40\tfrac{1}{2} \text{ in.},$$

$$A_s = \frac{300{,}000}{89{,}100} \times 2.25 = 7.58 \text{ sq. in.}$$

In the preceding example it will be noted that the width of beam required is $40\frac{1}{2}$ in., while the width permitted is 48 in. It is more economical of steel to assume the full width of flange as working at a lower stress than the maximum permitted, as shown by the following computations:

The moment per foot of allowable width is

$$M = \frac{300{,}000}{4} = 75{,}000 \text{ lb.-ft.}$$

Referring to page 112, we find for the depth of 29 in. that the required moment is given with a concrete stress of 700 lb. per square inch and that the steel required is

$$A_s = \frac{300{,}000}{75{,}100} \times 1.89 = 7.55 \text{ sq. in.}$$

as compared with 7.58 sq. in. required in the former example.

It should be noted that the difference in results in taking advantage of the full flange width permitted is trifling and that the former method using the lesser width and assumed unit stresses is more simple and sufficiently accurate.

In the preceding examples the section of the beam stem between the neutral axis and the bottom of the slab has been neglected as is the usual practice. If it is desired to consider this compression section the process is simple.

Example:

Assume the conditions of the last example with a beam stem width of 14 in.

Referring to page 44, we find by direct ratio that a simple beam 14 by 29 in. gives

$$M = \frac{14}{12} \times 103{,}000 = 120{,}000 \text{ lb.-ft.},$$

$$A_s = \frac{14}{12} \times 2.69 = 3.14 \text{ sq. in.}$$

By subtraction this leaves

$$M = 300{,}000 - 120{,}000 = 180{,}000 \text{ lb.-ft.}$$

to be taken by the T-flange section of the beam.

Referring to page 112, we find that the additional width of flange and area of steel required is

$$b = \frac{180{,}000}{89{,}100} \times 12 = 24\tfrac{1}{4} \text{ in.},$$

$$A_s = \frac{180{,}000}{89{,}100} \times 2.25 = 4.55 \text{ sq. in.}$$

By summation the total flange width and steel required is

$$b = 14 + 24\tfrac{1}{4} = 38\tfrac{1}{4} \text{ in.},$$
$$A_s = 3.14 + 4.55 = 7.69 \text{ sq. in.}$$

These results show that the concrete will be stressed slightly less and the steel slightly more than is indicated in the previous example, and the difference in results except in the case of deep beams does not justify the more accurate method given above.

The tables for shallow beams with 2-in. and 2½-in. thick slabs will be found useful in designing the so-called "joist construction" with terra cotta or metal tile separated by small, closely spaced concrete beams with thin slabs over the tile.

Beams with Compression Reinforcement, Pages 144 to 155.—The most common conditions which make it necessary to use beam compression reinforcement are in the design of continuous T-beams for the negative moment at supports, or when otherwise typical T-beams have their slab flanges removed or restricted by openings. In such cases the use of compression reinforcement may be necessary.

The location of the neutral axis, being a function of the extreme unit fiber stresses and of n, is not affected in any way by the use of steel in compression. Consequently the beam reinforced for compression may be separated into the two elements, the beam with concrete alone in compression and the beam with steel alone in compression.

Example:

Assume the following conditions:

Bending moment $M = 200{,}000$ lb.-ft.,
$f_s = 20{,}000$ lb. per square inch,
$f_c = 800$ lb. per square inch,
$n = 12$.

Beam size limited to 14-in. width and 30-in. depth (effective).

Referring to page 52, we find for the simple beam with no compression reinforcement.

$$M = \frac{14}{12} \times 104{,}000 = 121{,}300 \text{ lb.-ft.}$$

$$A_s = \frac{14}{12} \times 2.33 = 2.72 \text{ sq. in.}$$

By subtraction the moment to be cared for with compression steel is

$200{,}000 - 121{,}300 = 78{,}700$ lb.-ft.

Assume the compression steel will be 3 in. from the compression face of the beam. Referring to page 155, we find under the depth of 30 in., that 1 sq. in. of steel will resist a moment of

$$M = 13{,}690 \text{ lb.-ft.}$$

By direct ratio the area of compression steel required is

$$A'_s = \frac{78{,}700}{13{,}690} = 5.75 \text{ sq. in.}$$

The tension steel to resist this balance of moment will be determined by formula (14):

$$A_s = \frac{M}{f_s(d - d')}.$$

Therefore, the additional tension steel required is

$$\frac{78{,}700}{\frac{27}{12} \times 20{,}000} = 1.75 \text{ sq. in.}$$

By summation the total steel in tension required is

$$A_s = 2.72 + 1.75 = 4.47 \text{ sq. in.,}$$

and the required compression steel as noted above is

$$A'_s = 5.75 \text{ sq. in.}$$

In the case of a T-beam with a flange width limited so as to require compression reinforcement to reduce the concrete stress, the process of design is identical with the above example except that the tables for T-beams are used in the first part of the example in place of those for simple beams.

The location of the compression steel with reference to the compression face of the beam has no influence on the first steps in the design which consider the compression in the concrete alone.

Columns, Pages 156 to 208.—These tables may be extended or used very readily for intermediate stresses not included here as all values for loads, areas, percentages of steel, etc., vary by direct ratio. For example, loads on columns for concrete stresses of 900 or 1,000 lb. per square inch are double those given in the tables for 450 and 500 lb. per square inch respectively.

Square Columns, Pages 156 to 183.—These tables may readily be used also for rectangular or irregularly shaped columns by using the values for the areas of the columns given in the tables.

Example:

Design a rectangular column for the following conditions:

Total load $P = 800{,}000$ lb.,

$f_c = 550$ lb. per square inch,

$n = 15$.

Assume that the size of column is not limited and that a low percentage of vertical reinforcement of say ½ per cent. is desirable.

Referring to page 166 under the column for ½ per cent. of vertical steel and $n = 15$, we find that a column 37 in. square having a sectional area of 1,369 sq. in. has a capacity of 806,000 lb. with ½ per cent. or 6.85 sq. in. of steel. This so nearly meets the requirements the designer will probably select the vertical steel as eight 1-in. round bars with an area of 6.28 and assuming 1½-in. fireproofing the result is a 40-in. square column with eight 1-in. round bars.

Assume, in the above example, that the column is limited in thickness to 33 in. or 30 in. net after deducting fireproofing. As found in the previous example, the column nearest to satisfying the conditions has a sectional area (from the table) of 1,369 sq. in. The width of the column will be then, by direct ratio,

$$\frac{1{,}369}{30} = 45.6 \text{ in. or say } 46 \text{ in. net.}$$

The result, adding fireproofing, then is a column 33 by 49 in. with eight 1-in. round bars.

Hooped Columns, Pages 184 to 208.—These tables give values for the concrete and hooping only, with separate tables for the vertical reinforcement, as so many pages would be required to cover the multiplicity of possible combinations with this variable added, as to make the tables too bulky for convenient use.

The tables consider three common methods of designing hooped columns, referred to here as methods I, II, and III.

Method I.—This method permits an arbitrary increase in the base concrete stress with fixed limits of hooping reinforcement.

Example:

Design a hooped column for the following conditions:

Total load $P = 850{,}000$ lb.

$f_c = 1.50 \times 500 = 750$ lb. per square inch, or a 50 per cent. increase of the base stress of 500 lb. per square inch. At least 1 per cent. of hooping is to be used.

Between 1 and 4 per cent. of vertical steel is to be used.

$n = 15$.

Referring to page 184, we find that a 33-in. column having a sectional area of 855 sq. in. will carry (without vertical steel) a load of

$P = 641{,}000$ lb.

This leaves for the vertical steel

$P' = 850{,}000 - 641{,}000 = 209{,}000$ lb.

Referring to page 198, we find it requires 20 sq. in. of vertical steel, which will carry a load of 210,000 lb. This is a ratio of vertical steel of

$$p' = \frac{20}{855} = 0.0234 \text{ or } 2\tfrac{1}{3} \text{ per cent.}$$

Referring to page 205, diameter of column = 33 in., we find that 6 — 0 wire at 2-in. pitch is 1.01 per cent. of hooping; or (by interpolation) ½-in. round wire (area = 0.196 sq. in.) at 2¼-in. pitch is 1.07 per cent. Using the latter, and allowing 1½-in. fireproofing we have as a result a column 36 in. in diameter reinforced with ½-in. round hooping of 33-in. diameter with 2¼-in. pitch and twenty 1-in. square vertical bars.

Method II.—This is strictly in accordance with Considere's recommendations as given in formula (17). The tables on pages 185 to 193 inclusive are based on this formula.

Example:

What is the total safe load (by this method) for the design determined in the preceding example using the following stresses?

$f_c = 600$ lb. per square inch,

$n = 12$.

Referring to page 189, we find under 1 per cent. hooping and $n = 12$ that a 33-in. net diameter column will carry

$P = 661{,}000$ lb.

Referring to page 199, we find under $f_c = 600$ that 20 sq. in. of vertical steel will carry

$P' = 132{,}000$ lb

By summation the total safe strength of the column is

$P = 661{,}000 + 132{,}000 = 793{,}000$ lb.

Method III.—This is similar to method *II* except that the hooping is assumed to work at a fixed stress, regardless of the concrete stress. Some specifications and building codes permit the use of hooping stresses (since they are tension stresses) up to 20,000 lb. per square inch in formula (17) in place of the term nf_c. By this method the safe load on a column due to hooping alone, or the value $P_s = 2.4\ p_s A_c f_s$ in formula (18) is independent of the stress allowed on the concrete core. For this method of design, the tables on pages 194 to 197 inclusive have been developed to be used in conjunction with the tables on page 184 and on pages 198, 199 and 200.

Example:

Find the safe load on the column of the preceding example (page 12) using the same stresses except that the hooping stress is $f_s = 18{,}000$ lb. per square inch.

Referring to page 184, the concrete core at 600 lb. per square inch will carry a load of

$P = 513{,}000$ lb.

Referring to page 196, the 1 per cent. hooping at 18,000 lb. per square inch will carry a load of

$P_s = 369{,}500$ lb.

As in the preceding example the vertical steel contributes

$P' = 132{,}000$ lb.

By summation the total safe load is

$P = 513{,}000 + 369{,}500 + 132{,}000 = 1{,}014{,}500$ lb.

TABLES OF COEFFICIENTS R, p, k AND j

(Slabs and simple beams)

$R = f_s pj$ or $\frac{1}{2} f_c kj$. $k = \frac{nf_c}{nf_c + f_s}$

$p = \frac{1}{2\frac{f_s}{f_c}\left(\frac{f_s}{nf_c} + 1\right)}$ $j = 1 - \frac{k}{3}$

		n = 15				n = 12			
f_s	f_c	R	p	k	j	R	p	k	j
10,000	300	41.7	0.0047	0.310	0.897	36.2	0.0040	0.265	0.912
	350	53.3	0.0060	0.344	0.885	46.7	0.0052	0.296	0.901
	400	65.6	0.0075	0.375	0.875	57.9	0.0065	0.324	0.892
	450	78.5	0.0091	0.403	0.866	69.7	0.0079	0.351	0.883
	500	91.8	0.0107	0.429	0.857	82.0	0.0094	0.375	0.875
	550	105.6	0.0124	0.452	0.849	94.9	0.0109	0.398	0.867
	600	119.7	0.0142	0.474	0.842	108.1	0.0126	0.419	0.860
	650	134.0	0.0161	0.494	0.835	121.6	0.0142	0.438	0.854
	700	148.7	0.0179	0.512	0.829	135.5	0.0160	0.457	0.848
	750	163.5	0.0199	0.529	0.824	149.6	0.0178	0.474	0.842
	800	178.5	0.0218	0.545	0.818	163.9	0.0196	0.490	0.837
	850	193.7	0.0238	0.560	0.813	178.5	0.0215	0.505	0.832
	900	209.0	0.0259	0.574	0.809	193.2	0.0234	0.519	0.827
	950	224.5	0.0279	0.588	0.804	208.1	0.0253	0.533	0.822
	1,000	240.0	0.0300	0.600	0.800	223.0	0.0272	0.545	0.818
	1,100	271.4	0.0342	0.623	0.792	253.6	0.0313	0.569	0.810
	1,200	303.1	0.0386	0.643	0.786	284.4	0.0354	0.590	0.803
12,000	300	37.2	0.0034	0.273	0.909	32.0	0.0029	0.231	0.923
	350	47.9	0.0044	0.304	0.899	41.5	0.0039	0.259	0.914
	400	59.3	0.0056	0.333	0.889	51.7	0.0048	0.286	0.905
	450	71.3	0.0068	0.360	0.880	62.6	0.0058	0.310	0.897
	500	83.8	0.0080	0.385	0.871	74.1	0.0069	0.333	0.889
	550	96.8	0.0093	0.407	0.864	86.0	0.0081	0.355	0.882
	600	110.2	0.0107	0.429	0.857	98.4	0.0094	0.375	0.875
	650	123.9	0.0121	0.448	0.851	111.2	0.0107	0.394	0.869
	700	137.9	0.0136	0.467	0.844	124.3	0.0120	0.412	0.863
	750	151.9	0.0151	0.484	0.839	137.8	0.0134	0.429	0.857
	800	166.7	0.0167	0.500	0.833	151.4	0.0148	0.444	0.852
	850	181.3	0.0182	0.515	0.828	165.4	0.0163	0.459	0.847
	900	196.2	0.0199	0.529	0.824	179.5	0.0178	0.474	0.842
	950	211.2	0.0215	0.543	0.819	193.8	0.0193	0.487	0.838
	1,000	226.3	0.0232	0.556	0.815	208.3	0.0208	0.500	0.833
	1,100	257.0	0.0265	0.579	0.807	237.8	0.0240	0.524	0.825
	1,200	288.0	0.0300	0.600	0.800	267.8	0.0273	0.545	0.818

TABLES OF COEFFICIENTS R, p, k AND j

(Slabs and simple beams)

$R = f_s pj$ or $\frac{1}{2} f_c kj$

$k = \frac{nf_c}{nf_c + f_s}$

$p = \frac{1}{2\frac{f_s}{f_c}\left(\frac{f_s}{nf_c} + 1\right)}$

$j = 1 - \frac{k}{3}$

		n = 15				n = 12			
f_s	f_c	R	p	k	j	R	p	k	j
14,000	300	33.5	0.0026	0.243	0.919	28.6	0.0022	0.205	0.932
	350	43.4	0.0034	0.273	0.909	37.3	0.0029	0.231	0.923
	400	54.0	0.0043	0.300	0.900	46.7	0.0037	0.255	0.915
	450	65.3	0.0052	0.325	0.892	56.8	0.0045	0.278	0.907
	500	77.1	0.0062	0.349	0.884	67.5	0.0054	0.300	0.900
	550	89.4	0.0073	0.371	0.876	78.7	0.0063	0.320	0.893
	600	102.2	0.0084	0.391	0.870	90.4	0.0073	0.340	0.887
	650	115.2	0.0095	0.411	0.863	102.4	0.0083	0.358	0.881
	700	128.6	0.0107	0.429	0.857	114.9	0.0094	0.375	0.875
	750	142.3	0.0119	0.446	0.851	127.6	0.0105	0.391	0.870
	800	156.2	0.0132	0.462	0.846	140.7	0.0116	0.407	0.864
	850	170.4	0.0145	0.477	0.841	154.0	0.0128	0.421	0.860
	900	184.8	0.0158	0.491	0.836	167.5	0.0140	0.435	0.855
	950	199.3	0.0171	0.504	0.832	181.3	0.0152	0.449	0.850
	1,000	214.0	0.0185	0.517	0.828	195.3	0.0165	0.462	0.846
	1,100	243.9	0.0212	0.541	0.820	223.7	0.0191	0.485	0.838
	1,200	274.2	0.0241	0.562	0.812	252.8	0.0217	0.507	0.831
16,000	300	30.5	0.0021	0.220	0.927	25.9	0.0017	0.184	0.939
	350	39.7	0.0027	0.247	0.918	33.9	0.0023	0.208	0.931
	400	49.6	0.0034	0.273	0.909	42.6	0.0029	0.231	0.923
	450	60.2	0.0042	0.297	0.901	52.0	0.0036	0.252	0.916
	500	71.3	0.0050	0.319	0.894	62.5	0.0043	0.273	0.909
	550	83.0	0.0059	0.340	0.887	72.5	0.0050	0.292	0.903
	600	95.0	0.0068	0.360	0.880	83.5	0.0058	0.310	0.897
	650	107.5	0.0077	0.379	0.874	94.9	0.0067	0.328	0.891
	700	120.4	0.0087	0.396	0.868	106.7	0.0075	0.344	0.885
	750	133.5	0.0097	0.413	0.862	118.8	0.0084	0.360	0.880
	800	146.9	0.0107	0.429	0.857	131.3	0.0094	0.375	0.875
	850	160.6	0.0118	0.443	0.852	144.0	0.0103	0.389	0.870
	900	174.5	0.0129	0.458	0.847	157.0	0.0113	0.403	0.866
	950	188.6	0.0140	0.471	0.843	170.2	0.0123	0.416	0.861
	1,000	202.9	0.0151	0.484	0.839	183.7	0.0134	0.429	0.857
	1,100	232.0	0.0174	0.508	0.831	211.2	0.0155	0.452	0.849
	1,200	261.6	0.0198	0.529	0.824	239.3	0.0178	0.474	0.821

TABLES OF COEFFICIENTS R, p, k AND j

(Slabs and simple beams)

$R = f_s p j$ or $\frac{1}{2} f_c k j$

$k = \frac{nf_c}{nf_c + f_s}$

$p = \frac{1}{2\frac{f_s}{f_c}\left(\frac{f_s}{nf_c} + 1\right)}$

$j = 1 - \frac{k}{3}$

		n = 15				n = 12			
f_s	f_c	R	p	k	j	R	p	k	j
18,000	300	28.0	0.0017	0.200	0.933	23.6	0.0014	0.167	0.944
	350	36.5	0.0022	0.226	0.925	31.0	0.0018	0.189	0.937
	400	45.8	0.0028	0.250	0.917	39.2	0.0023	0.211	0.930
	450	55.8	0.0034	0.273	0.909	47.9	0.0029	0.231	0.923
	500	66.3	0.0041	0.294	0.902	57.3	0.0035	0.250	0.917
	550	77.4	0.0048	0.314	0.895	67.2	0.0041	0.268	0.911
	600	88.9	0.0056	0.333	0.889	77.6	0.0048	0.286	0.905
	650	100.8	0.0063	0.351	0.883	88.4	0.0055	0.302	0.899
	700	113.1	0.0072	0.368	0.877	99.6	0.0062	0.318	0.894
	750	125.7	0.0080	0.385	0.872	111.1	0.0069	0.333	0.889
	800	138.7	0.0089	0.400	0.867	123.0	0.0077	0.348	0.884
	850	151.9	0.0098	0.415	0.862	135.2	0.0085	0.362	0.879
	900	165.3	0.0107	0.429	0.857	147.7	0.0094	0.375	0.875
	950	179.0	0.0117	0.442	0.853	160.4	0.0102	0.388	0.871
	1,000	192.8	0.0126	0.455	0.848	173.3	0.0111	0.400	0.867
	1,100	221.1	0.0146	0.478	0.841	200.0	0.0129	0.423	0.859
	1,200	250.0	0.0167	0.500	0.833	227.2	0.0148	0.444	0.852
20,000	300	25.9	0.0014	0.184	0.939	21.7	0.0011	0.153	0.949
	350	33.9	0.0018	0.208	0.931	28.6	0.0015	0.174	0.942
	400	42.6	0.0023	0.231	0.923	36.2	0.0019	0.194	0.935
	450	52.0	0.0028	0.252	0.916	44.4	0.0024	0.213	0.929
	500	62.0	0.0034	0.273	0.909	53.3	0.0029	0.231	0.923
	550	72.5	0.0040	0.292	0.903	62.6	0.0034	0.248	0.917
	600	83.5	0.0047	0.310	0.897	72.4	0.0040	0.265	0.912
	650	94.9	0.0053	0.328	0.891	82.7	0.0046	0.281	0.906
	700	106.7	0.0060	0.344	0.885	93.1	0.0052	0.296	0.901
	750	118.8	0.0068	0.360	0.880	104.3	0.0058	0.310	0.897
	800	131.2	0.0075	0.375	0.875	115.7	0.0065	0.324	0.892
	850	144.0	0.0083	0.389	0.870	127.4	0.0072	0.338	0.887
	900	157.0	0.0091	0.403	0.866	139.4	0.0079	0.351	0.883
	950	170.2	0.0099	0.416	0.861	151.6	0.0086	0.363	0.879
	1,000	183.7	0.0107	0.429	0.857	164.1	0.0094	0.375	0.875
	1,100	211.2	0.0124	0.452	0.849	189.7	0.0109	0.398	0.867
	1,200	239.3	0.0142	0.474	0.842	216.1	0.0126	0.419	0.860

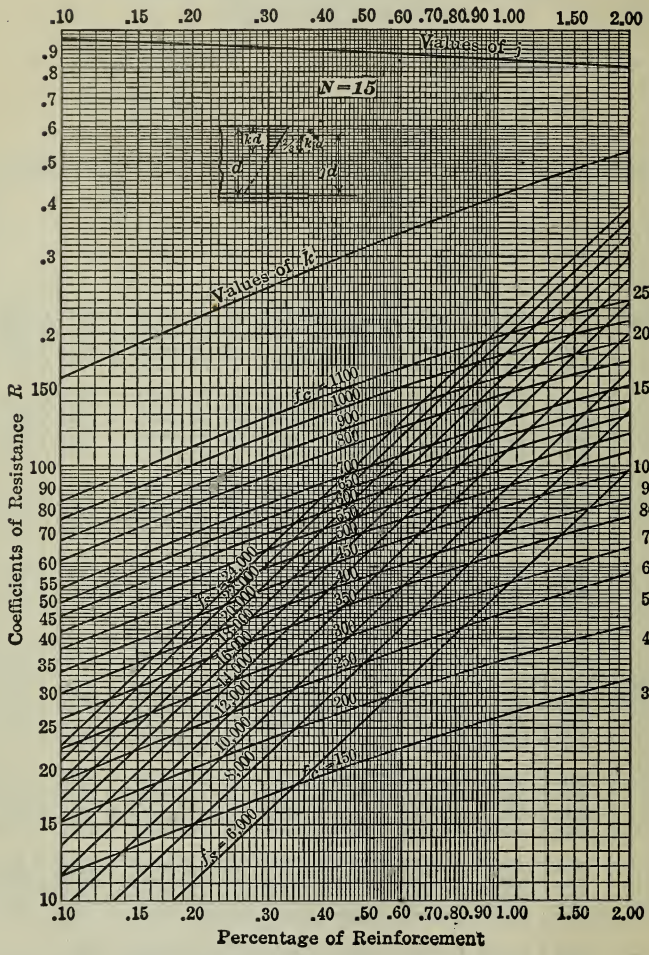
TABLES OF COEFFICIENTS R, p, k AND j

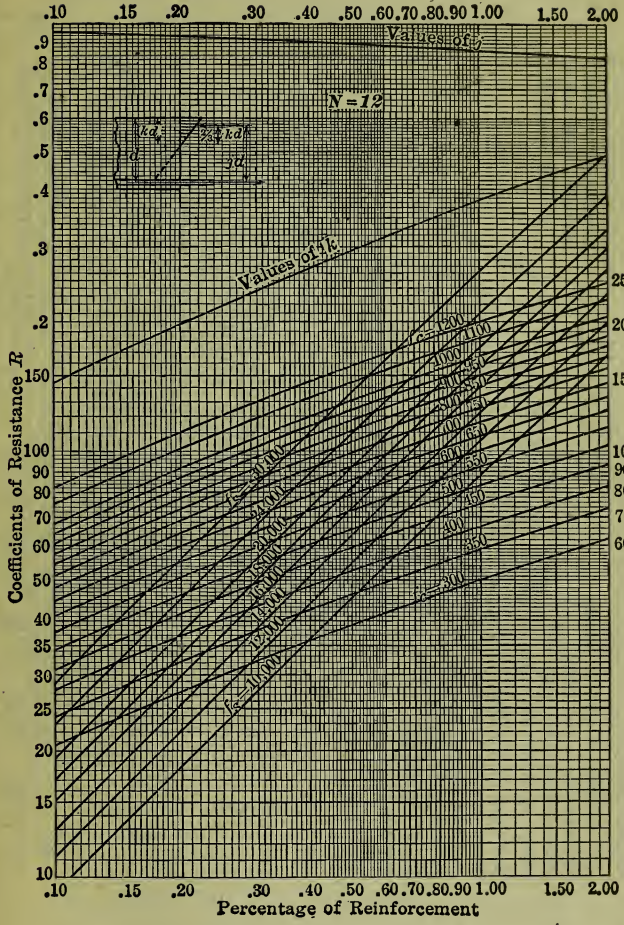
(Slabs and simple beams)

$$R = f_s pj \text{ or } \tfrac{1}{2} f_c kj \qquad k = \frac{nf_c}{nf_c + f_s}$$

$$p = \frac{1}{2\dfrac{f_s}{f_c}\left(\dfrac{f_s}{nf_c} + 1\right)} \qquad j = 1 - \frac{k}{3}$$

		n = 15				n = 12			
f_s	f_c	R	p	k	j	R	p	k	j
22,000	300	24.0	0.0012	0.170	0.943	20.1	0.0010	0.141	0.953
	350	31.6	0.0015	0.193	0.936	26.6	0.0013	0.160	0.947
	400	39.8	0.0020	0.214	0.929	33.7	0.0016	0.179	0.940
	450	48.7	0.0024	0.235	0.922	41.4	0.0020	0.197	0.934
	500	58.2	0.0029	0.254	0.915	49.7	0.0024	0.214	0.929
	550	68.2	0.0034	0.273	0.909	58.6	0.0029	0.231	0.923
	600	78.7	0.0040	0.290	0.903	67.9	0.0034	0.247	0.918
	650	89.6	0.0045	0.307	0.898	77.6	0.0039	0.262	0.913
	700	100.9	0.0051	0.323	0.892	87.8	0.0044	0.276	0.908
	750	112.6	0.0058	0.338	0.887	98.3	0.0050	0.290	0.903
	800	124.6	0.0064	0.353	0.882	109.2	0.0055	0.304	0.899
	850	136.9	0.0071	0.367	0.878	120.4	0.0061	0.317	0.894
	900	149.4	0.0078	0.380	0.873	131.9	0.0067	0.329	0.890
	950	162.3	0.0085	0.393	0.869	143.7	0.0074	0.341	0.886
	1,000	175.3	0.0092	0.405	0.865	155.7	0.0080	0.353	0.882
	1,100	202.0	0.0107	0.429	0.857	180.5	0.0094	0.375	0.875
	1,200	229.5	0.0123	0.450	0.850	206.1	0.0108	0.396	0.868
24,000	300	22.4	0.0010	0.158	0.947	18.7	0.0008	0.130	0.957
	350	29.5	0.0013	0.179	0.940	24.8	0.0011	0.149	0.950
	400	37.3	0.0017	0.200	0.933	31.5	0.0014	0.167	0.944
	450	45.8	0.0021	0.220	0.927	38.8	0.0017	0.184	0.939
	500	54.8	0.0025	0.238	0.921	46.7	0.0021	0.200	0.933
	550	64.4	0.0029	0.256	0.915	55.1	0.0025	0.216	0.928
	600	74.4	0.0034	0.273	0.909	63.9	0.0029	0.231	0.923
	650	84.9	0.0039	0.289	0.904	73.2	0.0033	0.245	0.918
	700	95.7	0.0044	0.304	0.899	82.9	0.0038	0.259	0.914
	750	106.9	0.0050	0.319	0.894	93.0	0.0043	0.273	0.909
	800	118.5	0.0056	0.333	0.889	103.4	0.0048	0.286	0.905
	850	130.4	0.0062	0.347	0.884	114.2	0.0053	0.298	0.901
	900	142.6	0.0068	0.360	0.880	125.2	0.0058	0.310	0.897
	950	155.0	0.0074	0.373	0.876	136.5	0.0064	0.322	0.893
	1,000	167.7	0.0080	0.385	0.872	148.1	0.0069	0.333	0.889
	1,100	193.6	0.0093	0.407	0.864	172.1	0.0081	0.355	0.882
	1,200	220.4	0.0107	0.429	0.857	196.9	0.0094	0.375	0.875


Values of j
N=15
Values of k
fc=1100
1000
900
800
700
600
500
400
350
300
250
200
150
fs=24,000
22,500
21,000
19,500
18,000
16,500
15,000
13,500
12,000
10,500
9,000
7,500
6,000
Coefficients of Resistance R
Percentage of Reinforcement
.10 .15 .20 .30 .40 .50 .60 .70 .80 .90 1.00 1.50 2.00
10 15 20 25 30 35 40 45 50 55 60 70 80 90 100 150 200 250
.2 .3 .4 .5 .6 .7 .8 .9


Values of p
N = 12
Values of k
fs=18,000
fs=16,000
fs=14,000
fs=12,000
fs=10,000
fs=9,000
fs=8,000
fs=7,000
fs=6,000
fs=5,000
fs=4,000
fs=3,000
fs=2,000
Coefficients of Resistance R
Percentage of Reinforcement
.10 .15 .20 .30 .40 .50 .60 .70 .80 .90 1.00 1.50 2.00
.9 .8 .7 .6 .5 .4 .3 .2 150 100 90 80 70 60 50 40 35 30 25 20 15 10
250 200 150 100 90 80 70 60

Number of Spans
Reactions
Decimals
3rd the maximum dist. out of point of inflection = 1/6 l in the case of a beam perfectly continuous or with fixed ends.
NOTES
Above-Moment Factors for ωl^2
Below-Vertical Shear Factors for ωl
1st Average of sum of factors at supports in any span. (disregarding sign) plus factor at center = 1/8 = .125.
2nd Sum of Vertical Shear factors in a span = 1 and sum of factors at a support multiplied by ωl equals the reaction.

TABLE OF WEIGHTS, AREAS AND SPACING OF BARS

AREAS OF SQUARE BARS PER FOOT

Square

Diam.	Area	Wt.	Spacing in inches 2″	3″	4″	5″	6″	7″	8″	9″	10″
¼	0.0625	0.212	0.37	0.25	0.19	0.15	0.12	0.11	0.09	0.08	0.07
5/16	0.0977	0.332	0.59	0.39	0.29	0.23	0.20	0.17	0.15	0.13	0.12
⅜	0.1406	0.478	0.84	0.56	0.42	0.34	0.28	0.24	0.21	0.19	0.17
7/16	0.1914	0.651	1.15	0.77	0.57	0.46	0.38	0.33	0.29	0.26	0.23
½	0.2500	0.850	1.50	1.00	0.75	0.60	0.50	0.43	0.37	0.33	0.30
9/16	0.3164	1.076	1.90	1.27	0.95	0.76	0.63	0.54	0.47	0.42	0.38
⅝	0.3906	1.328	2.34	1.56	1.17	0.94	0.78	0.67	0.59	0.52	0.47
11/16	0.4727	1.607	2.84	1.89	1.42	1.13	0.95	0.81	0.71	0.63	0.57
¾	0.5625	1.913	3.37	2.25	1.69	1.35	1.12	0.96	0.84	0.75	0.67

AREAS OF DIFFERENT NUMBERS OF SQUARE BARS

Diam.	Area	Wt.	2	3	4	5	6	7	8	9	10
½	0.2500	0.850	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
9/16	0.3164	1.076	0.63	0.95	1.27	1.58	1.90	2.21	2.53	2.85	3.16
⅝	0.3906	1.328	0.78	1.17	1.56	1.95	2.34	2.73	3.12	3.52	3.91
11/16	0.4727	1.607	0.94	1.42	1.89	2.36	2.84	3.31	3.78	4.25	4.73
¾	0.5625	1.913	1.12	1.69	2.25	2.81	3.37	3.94	4.50	5.06	5.62
13/16	0.6602	2.245	1.32	1.98	2.64	3.30	3.96	4.62	5.28	5.94	6.60
⅞	0.7656	2.603	1.53	2.30	3.06	3.83	4.59	5.36	6.12	6.89	7.66
15/16	0.8789	2.988	1.76	2.64	3.52	4.39	5.27	6.15	7.03	7.91	8.79
1	1.0000	3.400	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
1⅛	1.2656	4.303	2.53	3.80	5.06	6.33	7.59	8.86	10.12	11.39	12.66
1¼	1.5625	5.313	3.12	4.69	6.25	7.81	9.37	10.94	12.50	14.06	15.63
1⅜	1.8906	6.428	3.78	5.67	7.56	9.45	11.34	13.23	15.12	17.02	18.91
1½	2.2500	7.650	4.50	6.75	9.00	11.25	13.50	15.75	18.00	20.25	22.50

AREAS OF ROUND BARS PER FOOT

Round

Diam.	Area	Wt.	Spacing in inches 2″	3″	4″	5″	6″	7″	8″	9″	10″
¼	0.0491	0 167	0.29	0.20	0.15	0.12	0.10	0.08	0.07	0.07	0.06
5/16	0.0767	0.261	0.46	0.31	0.23	0.18	0.15	0.13	0.12	0.10	0.09
⅜	0.1104	0.376	0.66	0.44	0.33	0.26	0.22	0.19	0.17	0.15	0.13
7/16	0.1503	0.511	0.90	0.60	0.45	0.36	0.30	0.26	0.23	0.20	0.18
½	0.1963	0.668	1.18	0.79	0.59	0.47	0.39	0.34	0.29	0.26	0.24
9/16	0.2485	0.845	1.49	0.99	0.75	0.60	0.50	0.43	0.37	0.33	0.30
⅝	0.3068	1.043	1.84	1.23	0.92	0.74	0.62	0.52	0.46	0.41	0.37
11/16	0.3712	1.262	2.23	1.48	1.11	0.89	0.74	0.64	0.56	0.49	0.45
¾	0.4418	1.502	2.65	1.77	1.33	1.06	0.88	0.76	0.66	0.59	0.53

AREAS OF DIFFERENT NUMBERS OF ROUND BARS

Diam.	Area	Wt.	2	3	4	5	6	7	8	9	10
½	0.1963	0.668	0.39	0.59	0.79	0.98	1.18	1.37	1.57	1.77	1.96
9/16	0.2485	0.845	0.50	0.75	0.99	1.24	1.49	1.74	1.99	2.24	2.48
⅝	0.3068	1.043	0.61	0.92	1.23	1.53	1.84	2.15	2.45	2.76	3.07
11/16	0.3712	1.262	0.74	1.11	1.48	1.86	2.23	2.60	2.97	3.34	3.71
¾	0.4418	1.502	0.88	1.33	1.77	2.21	2.65	3.09	3.53	3.98	4.42
13/16	0.5185	1.763	1.04	1.56	2.07	2.59	3.11	3.63	4.15	4.67	5.18
⅞	0.6013	2.044	1.20	1.80	2.41	3.01	3.61	4.21	4.81	5.41	6.01
15/16	0.6903	2.347	1.38	2.07	2.76	3.45	4.14	4.83	5.52	6.21	6.90
1	0.7854	2.670	1.57	2.36	3.14	3.93	4.71	5.50	6.28	7.07	7.85
1⅛	0.9940	3.380	1.99	2.98	3.98	4.97	5.96	6.96	7.95	8.95	9.94
1¼	1.2272	4.172	2.45	3.68	4.91	6.14	7.36	8.59	9.82	11.04	12.27
1⅜	1.4849	5.049	2.97	4.45	5.94	7.42	8.91	10.39	11.88	13.36	14.85
1½	1.7671	6.008	3.53	5.30	7.07	8.84	10.60	12.37	14.14	15.90	17.67

WEIGHTS OF CONCRETE MEMBERS IN POUNDS

(Rectangular members 1 ft. long)

Depth, ins.	Width												
	6	7	8	9	10	11	12	13	14	15	16	17	18
6	38	44	50	56	63	69	75	81	88	94	100	106	113
7	44	51	58	66	73	80	88	95	102	109	117	124	131
8	50	58	67	75	83	92	100	108	117	125	133	142	150
9	56	66	75	84	94	103	113	122	131	141	150	160	169
10	63	73	83	94	104	115	125	135	146	156	167	178	188
11	69	80	92	103	115	126	138	149	160	172	183	195	206
12	75	88	100	113	125	138	150	163	175	188	200	213	225
13	81	95	108	122	135	149	163	176	190	203	217	230	244
14	88	102	117	131	146	160	175	190	204	219	233	248	263
15	94	109	125	141	156	172	188	203	219	234	250	266	281
16	100	117	133	150	167	183	200	217	233	250	267	283	300
17	106	124	142	159	177	195	213	230	248	266	283	301	319
18	113	131	150	169	188	206	225	244	263	281	300	319	338
19	119	139	158	178	198	218	238	257	277	297	317	336	356
20	125	146	167	188	208	229	250	271	292	313	333	354	375
21	131	153	175	197	219	241	263	284	306	328	350	372	394
22	138	160	183	206	229	252	275	298	321	344	367	390	413
23	144	168	192	216	240	264	288	311	335	359	383	407	431
24	150	175	200	225	250	275	300	325	350	375	400	425	450
25	156	182	208	234	260	286	313	339	365	391	417	443	469
26	163	190	217	244	271	298	325	352	379	406	433	460	488
27	169	197	225	253	281	309	338	366	394	422	450	478	506
28	175	204	233	263	292	321	350	379	408	438	467	496	525
29	181	211	242	272	302	332	363	393	423	453	483	514	544
30	188	219	250	281	313	344	375	407	438	469	500	531	563
31	194	226	258	291	323	355	388	420	452	484	517	549	581
32	200	233	267	300	333	367	400	433	467	500	533	567	600
33	206	241	275	309	344	378	413	447	481	516	550	584	619
34	213	248	283	319	354	390	425	460	496	531	567	602	638
35	219	255	292	328	365	401	438	474	510	547	583	620	656
36	225	263	300	338	375	413	450	488	525	563	600	638	675
37	231	270	308	347	385	424	463	501	540	578	617	655	694
38	238	277	317	356	396	435	475	515	554	594	633	673	713
39	244	284	325	366	406	447	488	528	569	609	650	691	731
40	250	292	333	375	417	458	500	542	583	625	667	708	750
41	256	299	342	384	427	470	513	555	598	641	683	726	769
42	263	306	350	394	438	481	525	569	613	656	700	744	788
43	269	314	358	403	448	493	538	582	627	672	717	761	806
44	275	321	367	413	458	504	550	596	642	688	733	779	825
45	281	328	375	422	469	516	563	609	656	703	750	797	844
46	288	335	383	431	479	527	575	623	671	719	767	815	863
47	294	343	392	441	490	539	588	636	685	734	783	832	881
48	300	350	400	450	500	550	600	650	700	750	800	850	900

WEIGHTS OF CONCRETE MEMBERS IN POUNDS

(Rectangular members 1 ft. long)

Depth, ins.	Width												
	19	20	21	22	23	24	25	26	27	28	29	30	31
6	119	125	131	138	144	150	156	163	169	175	181	188	194
7	139	146	153	160	168	175	182	190	197	204	211	219	226
8	158	167	175	183	192	200	208	217	225	233	242	250	258
9	178	188	197	206	216	225	234	244	253	263	272	281	291
10	198	208	219	229	240	250	260	271	281	292	302	313	323
11	218	229	241	252	264	275	286	298	309	321	332	344	355
12	238	250	263	275	288	300	313	325	338	350	363	375	388
13	257	271	284	298	311	325	339	352	366	379	393	407	420
14	277	292	306	321	335	350	365	379	394	408	423	438	452
15	297	313	328	344	359	375	391	406	422	438	453	469	484
16	317	333	350	367	383	400	417	433	450	467	483	500	517
17	336	354	372	390	407	425	443	460	478	496	514	531	549
18	356	375	394	413	431	450	469	488	506	525	544	563	581
19	376	396	416	435	455	475	495	515	534	554	574	594	614
20	396	417	438	458	479	500	521	542	563	583	604	625	646
21	416	438	459	481	503	525	547	569	591	613	634	656	678
22	435	458	481	504	527	550	573	596	619	642	665	688	710
23	455	479	503	527	551	575	599	623	647	671	695	719	743
24	475	500	525	550	575	600	625	650	675	700	725	750	775
25	495	521	547	573	599	625	651	677	703	729	755	781	807
26	515	542	569	596	623	650	677	704	731	758	785	813	840
27	534	563	591	619	647	675	703	731	759	788	816	844	872
28	554	584	613	642	671	700	729	758	788	817	846	875	904
29	574	604	634	665	695	725	755	785	816	846	876	906	936
30	594	625	656	688	719	750	781	813	844	875	906	938	969
31	614	646	678	710	743	775	807	840	872	904	936	969	1001
32	633	667	700	733	767	800	833	867	900	934	967	1000	1033
33	653	688	722	756	791	825	859	894	928	963	997	1031	1066
34	673	709	744	779	815	850	885	921	956	992	1027	1063	1098
35	693	729	766	802	839	875	911	948	984	1021	1057	1094	1130
36	713	750	788	825	863	900	938	975	1013	1050	1088	1125	1163
37	732	771	809	848	886	925	964	1002	1041	1079	1118	1156	1195
38	752	792	831	871	910	950	990	1029	1069	1109	1148	1188	1227
39	772	813	853	894	934	975	1016	1056	1097	1138	1178	1219	1259
40	792	834	875	917	958	1000	1042	1083	1125	1167	1208	1250	1292
41	811	854	897	940	982	1025	1068	1110	1153	1196	1239	1281	1324
42	831	875	919	963	1006	1050	1094	1138	1181	1225	1269	1313	1356
43	851	896	941	985	1030	1075	1120	1165	1209	1254	1299	1344	1389
44	871	917	963	1008	1054	1100	1146	1192	1238	1284	1329	1375	1421
45	891	938	984	1031	1078	1125	1172	1219	1266	1313	1359	1406	1453
46	910	959	1006	1054	1102	1150	1198	1246	1294	1342	1390	1438	1485
47	930	979	1028	1077	1126	1175	1124	1273	1322	1371	1420	1469	1518
48	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550

WEIGHTS OF CONCRETE MEMBERS IN POUNDS

(Rectangular members 1 ft. long)

Depth, ins.	Width												
	32	33	34	35	36	37	38	39	40	41	42	43	44
6	200	206	213	219	225	231	238	244	250	256	263	269	275
7	233	241	248	255	263	270	277	284	292	299	306	314	321
8	267	275	283	292	300	308	317	325	333	342	350	358	367
9	300	309	319	328	338	347	356	366	375	384	394	403	413
10	333	344	354	365	375	385	396	406	417	427	438	448	458
11	367	378	390	401	413	424	435	447	458	470	481	493	504
12	400	413	425	438	450	463	475	488	500	513	525	538	550
13	433	447	460	474	488	501	515	528	542	555	569	582	596
14	467	481	496	510	525	540	554	569	583	598	613	627	642
15	500	516	531	547	563	578	594	609	625	641	656	672	688
16	534	550	567	583	600	617	634	650	667	683	700	717	734
17	567	584	602	620	638	655	673	691	708	726	744	761	779
18	600	619	638	656	675	694	713	731	750	769	788	806	825
19	633	653	673	693	713	732	752	772	792	811	831	851	871
20	667	688	709	729	750	771	792	813	834	854	875	896	917
21	700	722	744	766	788	809	831	853	875	897	919	941	963
22	733	756	779	802	825	848	871	894	917	940	963	985	1008
23	767	791	815	839	863	886	910	934	958	982	1006	1030	1054
24	800	825	850	875	900	925	950	975	1000	1025	1050	1075	1100
25	833	859	885	911	938	964	990	1016	1042	1067	1094	1120	1146
26	867	894	921	948	975	1002	1029	1056	1084	1110	1138	1165	1192
27	900	928	956	984	1013	1041	1069	1097	1125	1153	1181	1209	1238
28	934	963	992	1021	1050	1079	1109	1138	1167	1196	1225	1254	1284
29	967	997	1027	1057	1088	1118	1148	1178	1208	1239	1269	1299	1329
30	1000	1031	1063	1094	1125	1156	1188	1219	1250	1281	1313	1344	1375
31	1033	1066	1098	1130	1163	1195	1227	1259	1292	1324	1356	1389	1421
32	1067	1100	1133	1167	1200	1233	1267	1300	1333	1367	1400	1433	1467
33	1100	1134	1169	1203	1238	1272	1306	1341	1375	1409	1444	1478	1513
34	1133	1169	1204	1240	1275	1310	1346	1381	1417	1452	1488	1523	1558
35	1167	1203	1240	1276	1313	1349	1385	1422	1458	1495	1531	1568	1604
36	1200	1238	1275	1313	1350	1388	1425	1463	1500	1538	1575	1613	1650
37	1233	1272	1310	1349	1388	1426	1465	1503	1542	1580	1619	1657	1696
38	1267	1306	1346	1385	1425	1465	1504	1544	1583	1623	1663	1702	1742
39	1300	1341	1381	1422	1463	1503	1544	1584	1625	1666	1706	1747	1788
40	1333	1375	1417	1458	1500	1542	1583	1625	1667	1708	1750	1792	1833
41	1367	1409	1452	1495	1538	1580	1623	1666	1708	1751	1794	1837	1879
42	1400	1444	1488	1531	1575	1619	1663	1706	1750	1794	1838	1881	1925
43	1433	1478	1523	1568	1613	1657	1702	1747	1792	1837	1881	1926	1971
44	1467	1513	1558	1604	1650	1696	1742	1788	1833	1879	1925	1971	2017
45	1500	1547	1594	1641	1688	1734	1781	1828	1875	1922	1969	2016	2063
46	1533	1581	1629	1677	1725	1773	1821	1869	1917	1965	2013	2060	2108
47	1567	1616	1665	1714	1763	1812	1860	1909	1958	2007	2056	2105	2154
48	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 60.16$ $f_s = 16{,}000$ $n = 15$

$p = 0.00417$ $f_c = 450$

Depth, in inches	Moment	Area	Depth, in inches	Moment	Area	Depth, in inches	Moment	Area
1	60	0.05	11	7,280	0.55	36	78,000	1.80
¼	94	0.06	¼	7,610	0.56	37	82,400	1.85
½	135	0.08	½	7,960	0.58	38	86,900	1.90
¾	184	0.09	¾	8,310	0.59	39	91,500	1.95
2	241	0.10	12	8,660	0.60	40	96,300	2.00
¼	305	0.11	½	9,400	0.63	41	101,000	2.05
½	376	0.13	13	10,170	0.65	42	106,000	2.10
¾	455	0.14	½	10,960	0.68	43	111,000	2.15
3	541	0.15	14	11,790	0.70	44	116,000	2.20
¼	635	0.16	½	12,650	0.73	45	122,000	2.25
½	737	0.18	15	13,540	0.75	46	127,000	2.30
¾	846	0.19	½	14,450	0.78	47	133,000	2.35
4	963	0.20	16	15,400	0.80	48	139,000	2.40
¼	1,087	0.21	½	16,400	0.83	49	144,000	2.45
½	1,218	0.23	17	17,400	0.85	50	150,000	2.50
¾	1,357	0.24	½	18,400	0.88	51	156,000	2.55
5	1,504	0.25	18	19,500	0.90	52	163,000	2.60
¼	1,660	0.26	½	20,600	0.93	53	169,000	2.65
½	1,820	0.28	19	21,700	0.95	54	175,000	2.70
¾	1,990	0.29	½	22,900	0.98	55	182,000	2.75
6	2,170	0.30	20	24,100	1.00	56	189,000	2.80
¼	2,350	0.31	½	25,300	1.03	57	195,000	2.85
½	2,540	0.33	21	26,500	1.05	58	202,000	2.90
¾	2,740	0.34	½	27,800	1.08	59	209,000	2.95
7	2,950	0.35	22	29,100	1.10	60	217,000	3.00
¼	3,160	0.36	½	30,500	1.13	61	224,000	3.05
½	3,380	0.38	23	31,800	1.15	62	231,000	3.10
¾	3,610	0.39	½	33,200	1.18	63	239,000	3.15
8	3,850	0.40	24	34,700	1.20	64	246,000	3.20
¼	4,100	0.41	25	37,600	1.25	65	254,000	3.25
½	4,350	0.43	26	40,700	1.30	66	262,000	3.30
¾	4,610	0.44	27	43,900	1.35	67	270,000	3.35
9	4,870	0.45	28	47,200	1.40	68	278,000	3.40
¼	5,150	0.46	29	50,600	1.45	69	286,000	3.45
½	5,430	0.48	30	54,100	1.50	70	295,000	3.50
¾	5,720	0.49	31	57,800	1.55	71	303,000	3.55
10	6,020	0.50	32	61,600	1.60	72	312,000	3.60
¼	6,320	0.51	33	65,500	1.65	73	321,000	3.65
½	6,630	0.53	34	69,500	1.70	74	329,000	3.70
¾	6,950	0.54	35	73,700	1.75	75	338,000	3.75

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 71.30$ $f_s = 16{,}000$ $n = 15$

$p = 0.00498$ $f_c = 500$

Depth, in inches	Moment	Area	Depth, in inches	Moment	Area	Depth, in inches	Moment	Area
1	71	0.06	11	8,630	0.66	36	92,400	2.15
¼	111	0.07	¼	9,020	0.67	37	97,600	2.21
½	160	0.09	½	9,430	0.69	38	103,000	2.27
¾	218	0.10	¾	9,840	0.70	39	108,000	2.33
2	285	0.12	12	10,270	0.72	40	114,000	2.39
¼	361	0.13	½	11,140	0.75	41	120,000	2.45
½	446	0.15	13	12,050	0.78	42	126,000	2.51
¾	539	0.16	½	12,990	0.81	43	132,000	2.57
3	642	0.18	14	13,970	0.84	44	138,000	2.63
¼	753	0.19	½	14,990	0.87	45	144,000	2.69
½	873	0.21	15	16,000	0.90	46	151,000	2.75
¾	1,003	0.22	½	17,100	0.93	47	158,000	2.81
4	1,141	0.24	16	18,300	0.96	48	164,000	2.87
¼	1,288	0.25	½	19,400	0.99	49	171,000	2.93
½	1,444	0.27	17	20,600	1.02	50	178,000	2.99
¾	1,610	0.28	½	21,800	1.05	51	185,000	3.05
5	1,780	0.30	18	23,100	1.08	52	193,000	3.11
¼	1,970	0.31	½	24,400	1.11	53	200,000	3.17
½	2,160	0.33	19	25,700	1.14	54	208,000	3.23
¾	2,360	0.34	½	27,100	1.17	55	216,000	3.29
6	2,570	0.36	20	28,500	1.20	56	224,000	3.35
¼	2,790	0.37	½	30,000	1.23	57	232,000	3.41
½	3,010	0.39	21	31,400	1.25	58	240,000	3.47
¾	3,250	0.40	½	33,000	1.28	59	248,000	3.53
7	3,490	0.42	22	34,500	1.31	60	257,000	3.59
¼	3,750	0.43	½	36,100	1.34	61	265,000	3.65
½	4,010	0.45	23	37,700	1.37	62	274,000	3.71
¾	4,280	0.46	½	39,400	1.40	63	283,000	3.76
8	4,560	0.48	24	41,100	1.43	64	292,000	3.82
¼	4,850	0.49	25	44,600	1.49	65	301,000	3.88
½	5,150	0.51	26	48,200	1.55	66	311,000	3.94
¾	5,460	0.52	27	52,000	1.61	67	320,000	4.00
9	5,780	0.54	28	55,900	1.67	68	330,000	4.06
¼	6,100	0.55	29	60,000	1.73	69	339,000	4.12
½	6,430	0.57	30	64,200	1.79	70	349,000	4.18
¾	6,780	0.58	31	68,500	1.85	71	359,000	4.24
10	7,130	0.60	32	73,000	1.91	72	370,000	4.30
¼	7,490	0.61	33	77,600	1.97	73	380,000	4.36
½	7,860	0.63	34	82,400	2.03	74	390,000	4.42
¾	8,240	0.64	35	87,300	2.09	75	401,000	4.48

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 82.95$ $f_s = 16{,}000$ $n = 15$

$p = 0.00585$ $f_c = 550$

Depth, in inches	Moment	Area	Depth, in inches	Moment	Area	Depth, in inches	Moment	Area
1	83	0.07	11	10,040	0.77	36	108,000	2.53
¼	130	0.09	¼	10,500	0.79	37	114,000	2.60
½	187	0.11	½	10,970	0.81	38	120,000	2.67
¾	254	0.12	¾	11,450	0.82	39	126,000	2.74
2	332	0.14	12	11,940	0.84	40	133,000	2.81
¼	420	0.16	½	12,960	0.88	41	139,000	2.88
½	518	0.18	13	14,020	0.91	42	146,000	2.95
¾	627	0.19	½	15,120	0.95	43	153,000	3.02
3	747	0.21	14	16,300	0.98	44	161,000	3.09
¼	876	0.23	½	17,400	1.02	45	168,000	3.16
½	1,016	0.25	15	18,700	1.05	46	176,000	3.23
¾	1,166	0.26	½	19,900	1.09	47	183,000	3.30
4	1,327	0.28	16	21,200	1.12	48	191,000	3.37
¼	1,498	0.30	½	22,600	1.16	49	199,000	3.44
½	1,680	0.32	17	24,000	1.19	50	207,000	3.51
¾	1,870	0.33	½	25,400	1.23	51	216,000	3.58
5	2,070	0.35	18	26,900	1.26	52	224,000	3.65
¼	2,290	0.37	½	28,400	1.30	53	233,000	3.72
½	2,510	0.39	19	29,900	1.33	54	242,000	3.79
¾	2,740	0.40	½	31,500	1.37	55	251,000	3.86
6	2,990	0.42	20	33,200	1.40	56	260,000	3.93
¼	3,240	0.44	½	34,900	1.44	57	270,000	4.00
½	3,500	0.46	21	36,600	1.47	58	279,000	4.07
¾	3,780	0.47	½	38,300	1.51	59	289,000	4.14
7	4,070	0.49	22	40,100	1.54	60	299,000	4.21
¼	4,360	0.51	½	42,000	1.58	61	309,000	4.28
½	4,670	0.53	23	43,900	1.61	62	319,000	4.35
¾	4,980	0.54	½	45,800	1.65	63	329,000	4.42
8	5,310	0.56	24	47,800	1.68	64	340,000	4.49
¼	5,650	0.58	25	51,800	1.75	65	350,000	4.56
½	5,990	0.60	26	56,100	1.83	66	361,000	4.63
¾	6,350	0.61	27	60,500	1.90	67	372,000	4.70
9	6,720	0.63	28	65,000	1.97	68	384,000	4.77
¼	7,100	0.65	29	69,800	2.04	69	395,000	4.84
½	7,490	0.67	30	74,700	2.11	70	406,000	4.91
¾	7,890	0.68	31	79,700	2.18	71	418,000	4.98
10	8,300	0.70	32	84,900	2.25	72	430,000	5.05
¼	8,710	0.72	33	90,300	2.32	73	442,000	5.12
½	9,140	0.74	34	95,900	2.39	74	454,000	5.19
¾	9,590	0.75	35	102,000	2.46	75	467,000	5.26

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

R = 95.04 f_s = 16,000 n = 15

p = 0.00675 f_c = 600 .

Depth, in inches	Moment	Area	Depth, in inches	Moment	Area	Depth, in inches	Moment	Area
1	95	0.08	11	11,500	0.89	36	123,000	2.92
¼	149	0.10	¼	12,030	0.91	37	130,000	3.00
½	214	0.12	½	12,570	0.93	38	137,000	3.08
¾	291	0.14	¾	13,120	0.95	39	145,000	3.16
2	380	0.16	12	13,690	0.97	40	152,000	3.24
¼	481	0.18	½	14,850	1.01	41	160,000	3.32
½	594	0.20	13	16,100	1.05	42	168,000	3.40
¾	719	0.22	½	17,300	1.09	43	176,000	3.48
3	855	0.24	14	18,600	1.13	44	184,000	3.56
¼	1,004	0.26	½	20,000	1.17	45	192,000	3.64
½	1,164	0.28	15	21,400	1.21	46	201,000	3.73
¾	1,336	0.30	½	22,800	1.26	47	210,000	3.81
4	1,521	0.32	16	24,300	1.30	48	219,000	3.89
¼	1,720	0.34	½	25,900	1.34	49	228.000	3.97
½	1,930	0.36	17	27,500	1.38	50	238,000	4.05
¾	2,140	0.38	½	29,100	1.42	51	247,000	4.13
5	2,380	0.40	18	30,800	1.46	52	257,000	4.21
¼	2,620	0.43	½	32,500	1.50	53	267,000	4.29
½	2,880	0.45	19	34,300	1.54	54	277,000	4.37
¾	3,140	0.47	½	36,100	1.58	55	287,000	4.45
6	3,420	0.49	20	38,000	1.62	56	298,000	4.54
¼	3,710	0.51	½	39,900	1.66	57	309,000	4.62
½	4,010	0.53	21	41,900	1.70	58	320,000	4.70
¾	4,330	0.55	½	43,900	1.74	59	331,000	4.78
7	4,660	0.57	22	46,000	1.78	60	342,000	4.86
¼	5,000	0.59	½	48,100	1.82	61	354,000	4.94
½	5,350	0.61	23	50,300	1.86	62	365,000	5.02
¾	5,710	0.63	½	52,500	1.90	63	377,000	5.10
8	6,080	0.65	24	54,700	1.94	64	389,000	5.18
¼	6,470	0.67	25	59,400	2.02	65	402,000	5.26
½	6,870	0.69	26	64,200	2.11	66	414,000	5.35
¾	7,280	0.71	27	69,300	2.19	67	427,000	5.43
9	7,700	0.73	28	74,500	2.27	68	439,000	5.51
¼	8,130	0.75	29	79,900	2.35	69	452,000	5.59
½	8,580	0.77	30	85,500	2.43	70	466,000	5.67
¾	9,030	0.79	31	91,300	2.51	71	479,000	5.75
10	9,500	0.81	32	97,300	2.59	72	493,000	5.83
¼	9,980	0.83	33	103,000	2.67	73	506,000	5.91
½	10,480	0.85	34	110,000	2.75	74	520,000	5.99
¾	10,980	0.87	35	116,000	2.83	75	535,000	6.07

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 107.5$ $f_s = 16{,}000$ $n = 15$

$p = 0.00769$ $f_c = 650$

Depth, in inches	Moment	Area	Depth, in inches	Moment	Area	Depth, in inches	Moment	Area
1	108	0.09	11	13,010	1.02	36	139,000	3.32
¼	168	0.12	¼	13,610	1.04	37	147,000	3.41
½	242	0.14	½	14,220	1.06	38	155,000	3.51
¾	330	0.16	¾	14,840	1.08	39	164,000	3.60
2	430	0.18	12	15,500	1.11	40	172,000	3.69
¼	544	0.21	½	16,800	1.15	41	181,000	3.78
½	672	0.23	13	18,200	1.20	42	190,000	3.88
¾	813	0.25	½	19,600	1.25	43	199,000	3.97
3	968	0.28	14	21,100	1.29	44	208,000	4.06
¼	1,136	0.30	½	22,600	1.34	45	218,000	4.15
½	1,317	0.32	15	24,200	1.38	46	227,000	4.24
¾	1,512	0.35	½	25,800	1.43	47	237,000	4.34
4	1,720	0.37	16	27,500	1.48	48	248,000	4.43
¼	1,940	0.39	½	29,300	1.52	49	258,000	4.52
½	2,180	0.42	17	31,100	1.57	50	269,000	4.61
¾	2,430	0.44	½	32,900	1.61	51	280,000	4.71
5	2,690	0.46	18	34,800	1.66	52	291,000	4.80
¼	2,960	0.48	½	36,800	1.71	53	302,000	4.89
½	3,250	0.51	19	38,800	1.75	54	313,000	4.98
¾	3,550	0.53	½	40,900	1.79	55	325,000	5.08
6	3,870	0.55	20	43,000	1.84	56	337,000	5.17
¼	4,200	0.58	½	45,200	1.89	57	349,000	5.26
½	4,540	0.60	21	47,400	1.94	58	362,000	5.35
¾	4,900	0.62	½	49,700	1.98	59	374,000	5.44
7	5,270	0.65	22	52,000	2.03	60	387,000	5.54
¼	5,650	0.67	½	54,400	2.08	61	400,000	5.63
½	6,050	0.69	23	56,900	2.12	62	413,000	5.72
¾	6,460	0.72	½	59,400	2.17	63	427,000	5.81
8	6,880	0.74	24	61,900	2.21	64	440,000	5.91
¼	7,320	0.76	25	67,200	2.31	65	454,000	6.00
½	7,770	0.78	26	72,700	2.40	66	468,000	6.09
¾	8,230	0.81	27	78,400	2.49	67	483,000	6.18
9	8,710	0.83	28	84,300	2.58	68	497,000	6.27
¼	9,200	0.85	29	90,400	2.68	69	512,000	6.37
½	9,700	0.88	30	96,700	2.77	70	527,000	6.46
¾	10,220	0.90	31	103,000	2.86	71	542,000	6.55
10	10,750	0.92	32	110,000	2.95	72	557,000	6.64
¼	11,290	0.95	33	117,000	3.05	73	573,000	6.74
½	11,850	0.97	34	124,000	3.14	74	589,000	6.83
¾	12,420	0.99	35	132,000	3.23	75	605,000	6.92

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 120.4$ $f_s = 16{,}000$ $n = 15$

$p = 0.00867$ $f_c = 700$

Depth, in inches	Moment	Area	Depth, in inches	Moment	Area	Depth, in inches	Moment	Area
1	120	0.10	11	14,570	1.14	36	156,000	3.75
¼	188	0.13	¼	15,200	1.17	37	165,000	3.85
½	271	0.17	½	15,900	1.20	38	174,000	3.95
¾	369	0.18	¾	16,600	1.22	39	183,000	4.06
2	482	0.21	12	17,300	1.25	40	193,000	4.16
¼	610	0.23	½	18,800	1.30	41	202,000	4.27
½	752	0.26	13	20,300	1.35	42	212,000	4.37
¾	911	0.29	½	21,900	1.40	43	223,000	4.47
3	1,084	0.31	14	23,600	1.46	44	233,000	4.58
¼	1,272	0.34	½	25,300	1.51	45	244,000	4.68
½	1,475	0.36	15	27,100	1.56	46	255,000	4.79
¾	1,690	0.39	½	28,900	1.61	47	266,000	4.89
4	1,930	0.42	16	30,800	1.66	48	277,000	4.99
¼	2,180	0.44	½	32,800	1.72	49	289,000	5.10
½	2,440	0.47	17	34,800	1.77	50	301,000	5.20
¾	2,720	0.49	½	36,900	1.82	51	313,000	5.31
5	3,010	0.52	18	39,000	1.87	52	326,000	5.41
¼	3,320	0.55	½	41,200	1.92	53	338,000	5.51
½	3,640	0.57	19	43,500	1.98	54	351,000	5.62
¾	3,980	0.60	½	45,800	2.03	55	364,000	5.72
6	4,330	0.62	20	48,200	2.08	56	378,000	5.83
¼	4,700	0.65	½	50,600	2.13	57	391,000	5.93
½	5,090	0.68	21	53,100	2.18	58	405,000	6.03
¾	5,490	0.70	½	55,700	2.24	59	419,000	6.14
7	5,900	0.73	22	58,300	2.29	60	433,000	6.24
¼	6,330	0.75	½	61,000	2.34	61	448,000	6.35
½	6,770	0.78	23	63,700	2.39	62	463,000	6.45
¾	7,230	0.81	½	66,500	2.44	63	478,000	6.55
8	7,710	0.83	24	69,400	2.50	64	493,000	6.66
¼	8,190	0.86	25	75,200	2.60	65	509,000	6.76
½	8,700	0.88	26	81,400	2.71	66	524,000	6.87
¾	9,220	0.91	27	87,800	2.81	67	540,000	6.97
9	9,750	0.94	28	94,400	2.91	68	557,000	7.07
¼	10,300	0.96	29	101,000	3.02	69	573,000	7.18
½	10,870	0.99	30	108,000	3.12	70	590,000	7.28
¾	11,450	1.01	31	116,000	3.23	71	607,000	7.39
10	12,040	1.04	32	123,000	3.33	72	624,000	7.49
¼	12,650	1.07	33	131,000	3.43	73	642,000	7.59
½	13,270	1.09	34	139,000	3.54	74	659,000	7.70
¾	13,910	1.12	35	147,000	3.64	75	677,000	7.80

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 133.5$ $f_s = 16{,}000$ $n = 15$

$p = 0.00967$ $f_c = 750$

Depth, in inches	Moment	Area	Depth, in inches	Moment	Area	Depth, in inches	Moment	Area
1	136	0.12	11	16,200	1.28	36	173.000	4.18
¼	209	0.15	¼	16,900	1.31	37	183,000	4.29
½	300	0.17	½	17,700	1.33	38	193,000	4.41
¾	409	0.20	¾	18,400	1.36	39	203,000	4.53
2	534	0.23	12	19,200	1.39	40	214,000	4.64
¼	676	0.26	½	20,900	1.45	41	224,000	4.76
½	834	0.29	13	22,600	1.51	42	235,000	4.87
¾	1,010	0.32	½	24,300	1.57	43	247,000	4.99
3	1,201	0.35	14	26,200	1.62	44	258,000	5.11
¼	1,410	0.38	½	28,100	1.68	45	270,000	5.22
½	1,640	0.41	15	30,000	1.74	46	282,000	5.34
¾	1,880	0.44	½	32,100	1.80	47	295,000	5.45
4	2,140	0.46	16	34,200	1.86	48	308,000	5.57
¼	2,410	0.49	½	36,300	1.91	49	321,000	5.69
½	2,700	0.52	17	38,600	1.97	50	334,000	5.80
¾	3,010	0.55	½	40,900	2.03	51	347,000	5.92
5	3,340	0.58	18	43,300	2.09	52	361,000	6.03
¼	3,680	0.61	½	45,700	2.15	53	375,000	6.15
½	4,040	0.64	19	48,200	2.20	54	389,000	6.27
¾	4,410	0.67	½	50,800	2.26	55	404,000	6.38
6	4,810	0.70	20	53,400	2.32	56	419,000	6.50
¼	5,210	0.73	½	56,100	2.38	57	434,000	6.61
½	5,640	0.75	21	58,900	2.44	58	449,000	6.73
¾	6,080	0.78	½	61,700	2.49	59	465,000	6.85
7	6,540	0.81	22	64,600	2.55	60	481,000	6.96
¼	7,020	0.84	½	67,600	2.61	61	497,000	7.08
½	7,510	0.87	23	70,600	2.67	62	513,000	7.19
¾	8,020	0.90	½	73,700	2.73	63	530,000	7.31
8	8,540	0.93	24	76,900	2.78	64	547,000	7.43
¼	9,090	0.96	25	83,400	2.90	65	564,000	7.54
½	9,650	0.99	26	90,200	3.02	66	582,000	7.66
¾	10,220	1.02	27	97,300	3.13	67	599,000	7.77
9	10,810	1.04	28	105,000	3.25	68	617,000	7.89
¼	11,420	1.07	29	112,000	3.37	69	636,000	8.01
½	12,050	1.10	30	120,000	3.48	70	654,000	8.12
¾	12,690	1.13	31	128,000	3.60	71	673,000	8.24
10	13,350	1.16	32	137,000	3.71	72	692,000	8.35
¼	14,030	1.19	33	145,000	3.83	73	711,000	8.47
½	14,720	1.22	34	154,000	3.95	74	731,000	8.59
¾	15,400	1.25	35	164,000	4.06	75	751,000	8.70

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 146.9$ $f_s = 16{,}000$ $n = 15$

$p = 0.01072$ $f_c = 800$.

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	147	0.13	11	17,800	1.42	36	190,000	4.63
¼	230	0.16	¼	18,600	1.45	37	201,000	4.76
½	331	0.19	½	19,400	1.48	38	212,000	4.89
¾	450	0.23	¾	20,300	1.51	39	223,000	5.02
2	588	0.26	12	21,200	1.54	40	235,000	5.15
¼	744	0.29	½	23,000	1.61	41	247,000	5.27
½	918	0.32	13	24,800	1.67	42	259,000	5.40
¾	1,111	0.35	½	26,800	1.74	43	272,000	5.53
3	1,322	0.39	14	28,800	1.80	44	284,000	5.66
¼	1,550	0.42	½	30,900	1.87	45	297,000	5.79
½	1,800	0.45	15	33,100	1.93	46	311,000	5.92
¾	2,070	0.48	½	35,300	1.99	47	325,000	6.05
4	2,350	0.51	16	37,600	2.06	48	338,000	6.17
¼	2,650	0.55	½	40,000	2.12	49	353,000	6.30
½	2,970	0.58	17	42,500	2.19	50	367,000	6.43
¾	3,310	0.61	½	45,000	2.25	51	382,000	6.56
5	3,670	0.64	18	47,600	2.32	52	397,000	6.69
¼	4,050	0.68	½	50,300	2.38	53	413,000	6.82
½	4,440	0.71	19	53,000	2.44	54	428,000	6.95
¾	4,860	0.74	½	55,900	2.51	55	444,000	7.08
6	5,290	0.77	20	58,800	2.57	56	461,000	7.20
¼	5,740	0.80	½	61,700	2.64	57	477,000	7.33
½	6,210	0.84	21	64,800	2.70	58	494,000	7.46
¾	6,690	0.87	½	67,900	2.77	59	511,000	7.59
7	7,200	0.90	22	71,100	2.83	60	529,000	7.72
¼	7,720	0.93	½	74,400	2.89	61	547,000	7.85
½	8,260	0.96	23	77,700	2.96	62	565,000	7.98
¾	8,820	1.00	½	81,100	3.02	63	583,000	8.10
8	9,400	1.03	24	84,600	3.09	64	602,000	8.23
¼	10,000	1.06	25	91,800	3.22	65	621,000	8.36
½	10,610	1.09	26	99,300	3.34	66	640,000	8.49
¾	11,250	1.13	27	107,000	3.47	67	659,000	8.62
9	11,900	1.16	28	115,000	3.60	68	679,000	8.75
¼	12,570	1.19	29	124,000	3.73	69	699,000	8.88
½	13,260	1.22	30	132,000	3.86	70	720,000	9.00
¾	13,960	1.25	31	141,000	3.99	71	741,000	9.13
10	14,690	1.29	32	150,000	4.12	72	762,000	9.26
¼	15,400	1.32	33	160,000	4.25	73	783,000	9.39
½	16,200	1.35	34	170,000	4.37	74	804,000	9.52
¾	17,000	1.38	35	180,000	4.50	75	826,000	9.65

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 94.88$ $f_s = 16{,}000$ $n = 12$

$p = 0.00666$ $f_c = 650$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	95	0.08	11	11,480	0.88	36	123,000	2.88
¼	148	0.10	¼	12,010	0.90	37	130,000	2.96
½	213	0.12	½	12,550	0.92	38	137,000	3.04
¾	291	0.14	¾	13,100	0.94	39	144,000	3.12
2	379	0.16	12	13,660	0.96	40	152,000	3.20
¼	480	0.18	½	14,830	1.00	41	159,000	3.28
½	593	0.20	13	16,000	1.04	42	167,000	3.36
¾	718	0.22	½	17,300	1.08	43	175,000	3.44
3	854	0.24	14	18,600	1.12	44	184,000	3.52
¼	1,002	0.26	½	19,900	1.16	45	192,000	3.60
½	1,162	0.28	15	21,300	1.20	46	201,000	3.68
¾	1,334	0.30	½	22,800	1.24	47	210,000	3.76
4	1,520	0.32	16	24,300	1.28	48	219,000	3.84
¼	1,710	0.34	½	25,800	1.32	49	228,000	3.92
½	1,920	0.36	17	27,400	1.36	50	237,000	4.00
¾	2,140	0.38	½	29,100	1.40	51	247,000	4.08
5	2,370	0.40	18	30,700	1.44	52	257,000	4.16
¼	2,610	0.42	½	32,500	1.48	53	267,000	4.24
½	2,870	0.44	19	34,300	1.52	54	277,000	4.32
¾	3,140	0.46	½	36,100	1.56	55	287,000	4.40
6	3,420	0.48	20	38,000	1.60	56	298,000	4.48
¼	3,710	0.50	½	39,900	1.64	57	308,000	4.56
½	4,010	0.52	21	41,800	1.68	58	319,000	4.64
¾	4,320	0.54	½	43,900	1.72	59	330,000	4.72
7	4,650	0.56	22	45,900	1.76	60	342,000	4.80
¼	4,990	0.58	½	48,000	1.80	61	353,000	4.88
½	5,340	0.60	23	50,200	1.84	62	365,000	4.95
¾	5,700	0.62	½	52,400	1.88	63	377,000	5.03
8	6,070	0.64	24	54,700	1.92	64	389,000	5.11
¼	6,460	0.66	25	59,300	2.00	65	401,000	5.19
½	6,860	0.68	26	64,100	2.08	66	413,000	5.27
¾	7,260	0.70	27	69,200	2.16	67	426,000	5.35
9	7,680	0.72	28	74,400	2.24	68	439,000	5.43
¼	8,120	0.74	29	79,800	2.32	69	452,000	5.51
½	8,560	0.76	30	85,400	2.40	70	465,000	5.59
¾	9,020	0.78	31	91,200	2.48	71	478,000	5.67
10	9,490	0.80	32	97,200	2.56	72	492,000	5.75
¼	9,970	0.82	33	103,000	2.64	73	506,000	5.83
½	10,460	0.84	34	110,000	2.72	74	520,000	5.91
¾	10,960	0.86	35	116,000	2.80	75	534,000	5.99

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

R = 106.7 f_s = 16,000 n = 12

p = 0.00753 f_c = 700

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	107	0.09	11	12,910	0.99	36	138,000	3.25
¼	167	0.11	¼	13,500	1.02	37	146,000	3.34
½	240	0.14	½	14,110	1.04	38	154,000	3.43
¾	327	0.16	¾	14,730	1.06	39	162,000	3.52
2	427	0.18	12	15,400	1.08	40	171,000	3.61
¼	540	0.20	½	16,700	1.13	41	179,000	3.70
½	667	0.23	13	18,000	1.17	42	188,000	3.80
¾	807	0.25	½	19,400	1.22	43	197,000	3.89
3	960	0.27	14	20,900	1.27	44	207,000	3.98
¼	1,127	0.29	½	22,400	1.31	45	216,000	4.07
½	1,307	0.32	15	24,000	1.36	46	226,000	4.16
¾	1,500	0.34	½	25,600	1.40	47	236,000	4.25
4	1,710	0.36	16	27,300	1.45	48	246,000	4.34
¼	1,930	0.38	½	29,000	1.49	49	256,000	4.43
½	2,160	0.41	17	30,800	1.54	50	267,000	4.52
¾	2,410	0.43	½	32,700	1.58	51	278,000	4.61
5	2,670	0.45	18	34,600	1.63	52	289,000	4.70
¼	2,940	0.47	½	36,500	1.67	53	300,000	4.79
½	3,230	0.50	19	38,500	1.72	54	311,000	4.88
¾	3,530	0.52	½	40,600	1.76	55	323,000	4.97
6	3,840	0.54	20	42,700	1.81	56	335,000	5.06
¼	4,170	0.56	½	44,800	1.85	57	347,000	5.15
½	4,510	0.59	21	47,100	1.90	58	359,000	5.24
¾	4,860	0.61	½	49,300	1.94	59	371,000	5.33
7	5,230	0.63	22	51,600	1.99	60	384,000	5.42
¼	5,610	0.66	½	54,000	2.03	61	397,000	5.51
½	6,000	0.68	23	56,400	2.08	62	410,000	5.60
¾	6,410	0.70	½	58,900	2.12	63	423,000	5.69
8	6,830	0.72	24	61,500	2.17	64	437,000	5.78
¼	7,260	0.75	25	66,700	2.26	65	451,000	5.87
½	7,710	0.77	26	72,100	2.35	66	465,000	5.96
¾	8,170	0.79	27	77,800	2.44	67	479,000	6.05
9	8,640	0.81	28	83,700	2.53	68	493,000	6.14
¼	9,130	0.84	29	89,700	2.62	69	508,000	6.23
½	9,630	0.86	30	96,000	2.71	70	523,000	6.33
¾	10,140	0.88	31	103,000	2.80	71	538,000	6.42
10	10,670	0.90	32	109,000	2.89	72	553,000	6.51
¼	11,210	0.93	33	116,000	2.98	73	569,000	6.60
½	11,760	0.95	34	123,000	3.07	74	584,000	6.69
¾	12,330	0.97	35	131,000	3.16	75	600,000	6.78

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 118.8$ $f_s = 16{,}000$ $n = 12$

$p = 0.00844$ $f_c = 750$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	119	0.10	11	14,370	1.11	36	154,000	3.65
¼	186	0.13	¼	15,000	1.14	37	163,000	3.75
½	267	0.15	½	15,700	1.16	38	172,000	3.85
¾	364	0.18	¾	16,400	1.19	39	181,000	3.95
2	475	0.20	12	17,100	1.22	40	190,000	4.05
¼	601	0.23	½	18,600	1.27	41	200,000	4.15
½	742	0.25	13	20,100	1.32	42	210,000	4.25
¾	898	0.28	½	21,700	1.37	43	220,000	4.36
3	1,069	0.30	14	23,300	1.42	44	230,000	4.46
¼	1,255	0.33	½	25,000	1.47	45	241,000	4.56
½	1,455	0.35	15	26,700	1.52	46	251,000	4.66
¾	1,670	0.38	½	28,500	1.57	47	262,000	4.76
4	1,900	0.41	16	30,400	1.62	48	274,000	4.86
¼	2,150	0.43	½	32,300	1.67	49	285,000	4.96
½	2,410	0.46	17	34,300	1.72	50	297,000	5.06
¾	2,680	0.48	½	36,400	1.77	51	309,000	5.17
5	2,970	0.51	18	38,500	1.82	52	321,000	5.27
¼	3,270	0.53	½	40,700	1.87	53	334,000	5.37
½	3,590	0.56	19	42,900	1.92	54	346,000	5.47
¾	3,930	0.58	½	45,200	1.97	55	359,000	5.57
6	4,280	0.61	20	47,500	2.03	56	373,000	5.67
¼	4,640	0.63	½	49,900	2.08	57	386,000	5.77
½	5,020	0.66	21	52,400	2.13	58	400,000	5.87
¾	5,410	0.68	½	54,900	2.18	59	414,000	5.98
7	5,820	0.71	22	57,500	2.23	60	428,000	6.08
¼	6,240	0.73	½	60,100	2.28	61	442,000	6.18
½	6,680	0.76	23	62,800	2.33	62	457,000	6.28
¾	7,140	0.78	½	65,600	2.38	63	472,000	6.38
8	7,600	0.81	24	68,400	2.43	64	487,000	6.48
¼	8,090	0.84	25	74,200	2.53	65	502,000	6.58
½	8,580	0.86	26	80,300	2.63	66	517,000	6.68
¾	9,100	0.89	27	86,600	2.73	67	533,000	6.79
9	9,620	0.91	28	93,100	2.84	68	549,000	6.89
¼	10,160	0.94	29	99,900	2.94	69	566,000	6.99
½	10,720	0.96	30	107,000	3.04	70	582,000	7.09
¾	11,290	0.99	31	114,000	3.14	71	599,000	7.19
10	11,880	1.01	32	122,000	3.24	72	616,000	7.29
¼	12,480	1.04	33	129,000	3.34	73	633,000	7.39
½	13,100	1.06	34	137,000	3.44	74	651,000	7.49
¾	13,730	1.09	35	146,000	3.54	75	668,000	7.60

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

R = 131.3 f_s = 16,000 n = 12

p = 0.00937 f_c = 800

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	131	0.11	11	15,900	1.24	36	170,000	4.05
¼	205	0.14	¼	16,600	1.26	37	180,000	4.16
½	295	0.17	½	17,400	1.29	38	190,000	4.27
¾	402	0.20	¾	18,100	1.32	39	200,000	4.39
2	525	0.22	12	18,900	1.35	40	210,000	4.50
¼	665	0.25	½	20,500	1.41	41	221,000	4.61
½	821	0.28	13	22,200	1.46	42	232,000	4.72
¾	993	0.31	½	23,900	1.52	43	243,000	4.83
3	1,182	0.34	14	25,700	1.57	44	254,000	4.95
¼	1,387	0.37	½	27,600	1.63	45	266,000	5.06
½	1,610	0.39	15	29,500	1.69	46	278,000	5.17
¾	1,850	0.42	½	31,500	1.74	47	290,000	5.28
4	2,100	0.45	16	33,600	1.80	48	303,000	5.40
¼	2,370	0.48	½	35,700	1.86	49	315,000	5.51
½	2,660	0.51	17	37,900	1.91	50	328,000	5.62
¾	2,960	0.53	½	40,200	1.97	51	342,000	5.73
5	3,280	0.56	18	42,500	2.02	52	355,000	5.85
¼	3,620	0.59	½	44,900	2.08	53	369,000	5.96
½	3,970	0.62	19	47,400	2.14	54	383,000	6.07
¾	4,340	0.65	½	49,900	2.19	55	397,000	6.18
6	4,730	0.67	20	52,500	2.25	56	412,000	6.30
¼	5,130	0.70	½	55,200	2.31	57	427,000	6.41
½	5,550	0.73	21	57,900	2.36	58	442,000	6.52
¾	5,980	0.76	½	60,700	2.42	59	457,000	6.63
7	6,430	0.79	22	63,500	2.47	60	473,000	6.75
¼	6,900	0.82	½	66,500	2.53	61	489,000	6.86
½	7,390	0.84	23	69,500	2.59	62	505,000	6.97
¾	7,890	0.87	½	72,500	2.64	63	521,000	7.08
8	8,400	0.90	24	75,600	2.70	64	538,000	7.20
¼	8,940	0.93	25	82,100	2.81	65	555,000	7.31
½	9,490	0.96	26	88,800	2.92	66	572,000	7.42
¾	10,050	0.98	27	95,700	3.04	67	589,000	7.53
9	10,630	1.01	28	103,000	3.15	68	607,000	7.65
¼	11,230	1.04	29	110,000	3.26	69	625,000	7.76
½	11,850	1.07	30	118,000	3.37	70	643,000	7.87
¾	12,480	1.10	31	126,000	3.49	71	662,000	7.98
10	13,130	1.12	32	134,000	3.60	72	681,000	8.10
¼	13,790	1.15	33	143,000	3.71	73	700,000	8.21
½	14,480	1.18	34	152,000	3.82	74	719,000	8.32
¾	15,200	1.21	35	161,000	3.94	75	739,000	8.43

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 100.8$ $f_s = 18{,}000$ $n = 15$

$p = 0.00634$ $f_c = 650$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	101	0.08	11	12,200	0.84	36	131,000	2.74
¼	158	0.10	¼	12,760	0.86	37	138,000	2.81
½	227	0.11	½	13,330	0.87	38	146,000	2.89
¾	309	0.13	¾	13,920	0.89	39	153,000	2.97
2	403	0.15	12	14,520	0.91	40	161,000	3.04
¼	510	0.17	½	15,700	0.95	41	169,000	3.12
½	630	0.19	13	17,000	0.99	42	178,000	3.20
¾	762	0.21	½	18,400	1.03	43	186,000	3.27
3	907	0.23	14	19,800	1.07	44	195,000	3.35
¼	1,065	0.25	½	21,200	1.10	45	204,000	3.42
½	1,235	0.27	15	22,700	1.14	46	213,000	3.50
¾	1,417	0.29	½	24,200	1.18	47	223,000	3.58
4	1,610	0.30	16	25,800	1.22	48	232,000	3.65
¼	1,820	0.32	½	27,400	1.26	49	242,000	3.73
½	2,040	0.34	17	29,100	1.29	50	252,000	3.80
¾	2,270	0.36	½	30,900	1.33	51	262,000	3.88
5	2,520	0.38	18	32,700	1.37	52	273,000	3.96
¼	2,780	0.40	½	34,500	1.41	53	283,000	4.03
½	3,050	0.42	19	36,400	1.45	54	294,000	4.11
¾	3,330	0.44	½	38,300	1.48	55	305,000	4.18
6	3,630	0.46	20	40,300	1.52	56	316,000	4.26
¼	3,940	0.48	½	42,400	1.56	57	327,000	4.34
½	4,260	0.49	21	44,500	1.60	58	339,000	4.41
¾	4,590	0.51	½	46,600	1.64	59	351,000	4.49
7	4,940	0.53	22	48,800	1.67	60	363,000	4.56
¼	5,300	0.55	½	51,000	1.71	61	375,000	4.64
½	5,670	0.57	23	53,300	1.75	62	387,000	4.72
¾	6,050	0.59	½	55,700	1.79	63	400,000	4.79
8	6,450	0.61	24	58,100	1.83	64	413,000	4.87
¼	6,860	0.63	25	63,000	1.90	65	426,000	4.95
½	7,280	0.65	26	68,100	1.98	66	439,000	5.02
¾	7,720	0.67	27	73,500	2.05	67	452,000	5.10
9	8,160	0.68	28	79,000	2.13	68	466,000	5.17
¼	8,620	0.70	29	84,800	2.21	69	480,000	5.25
½	9,100	0.72	30	90,700	2.28	70	494,000	5.33
¾	9,580	0.74	31	96,900	2.36	71	508,000	5.40
10	10,080	0.76	32	103,000	2.43	72	523,000	5.48
¼	10,590	0.78	33	110,000	2.51	73	537,000	5.55
½	11,110	0.80	34	117,000	2.59	74	552,000	5.63
¾	11,650	0.82	35	123,000	2.66	75	567,000	5.71

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

R = 113.1 f_s = 18,000

p = 0.00716 f_c = 700. n = 15

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	113	0.09	11	13,690	0.95	36	147,000	3.09
¼	177	0.11	¼	14,310	0.97	37	155,000	3.18
½	254	0.13	½	14,960	0.99	38	163,000	3.26
¾	346	0.15	¾	15,600	1.01	39	172,000	3.35
2	452	0.17	12	16,300	1.03	40	181,000	3.44
¼	573	0.19	½	17,700	1.07	41	190,000	3.52
½	707	0.21	13	19,100	1.12	42	199,000	3.61
¾	855	0.24	½	20,600	1.16	43	209,000	3.69
3	1,018	0.26	14	22,200	1.20	44	219,000	3.78
¼	1,195	0.28	½	23,800	1.25	45	229,000	3.87
½	1,385	0.30	15	25,400	1.29	46	239,000	3.95
¾	1,590	0.32	½	27,200	1.33	47	250,000	4.04
4	1,810	0.34	16	29,000	1.37	48	261,000	4.12
¼	2,040	0.37	½	30,800	1.42	49	272,000	4.21
½	2,290	0.39	17	32,700	1.46	50	283,000	4.30
¾	2,550	0.41	½	34,600	1.50	51	294,000	4.38
5	2,830	0.43	18	36,600	1.55	52	306,000	4.47
¼	3,120	0.45	½	38,700	1.59	53	318,000	4.55
½	3,420	0.47	19	40,800	1.63	54	330,000	4.64
¾	3,740	0.49	½	43,000	1.68	55	342,000	4.73
6	4,070	0.52	20	45,200	1.72	56	355,000	4.81
¼	4,420	0.54	½	47,500	1.76	57	367,000	4.90
½	4,780	0.56	21	49,900	1.80	58	380,000	4.98
¾	5,150	0.58	½	52,300	1.85	59	394,000	5.07
7	5,540	0.60	22	54,700	1.89	60	407,000	5.16
¼	5,940	0.62	½	57,300	1.93	61	421,000	5.24
½	6,360	0.64	23	59,800	1.98	62	435,000	5.33
¾	6,790	0.67	½	62,500	2.02	63	449,000	5.41
8	7,240	0.69	24	65,100	2.06	64	463,000	5.50
¼	7,700	0.71	25	70,700	2.15	65	478,000	5.58
½	8,170	0.73	26	76,500	2.23	66	493,000	5.67
¾	8,660	0.75	27	82,400	2.32	67	508,000	5.76
9	9,160	0.77	28	88,700	2.41	68	523,000	5.84
¼	9,680	0.79	29	95,100	2.49	69	538,000	5.93
½	10,210	0.82	30	102,000	2.58	70	554,000	6.01
¾	10,750	0.84	31	109,000	2.66	71	570,000	6.10
10	11,310	0.86	32	116,000	2.75	72	586,000	6.19
¼	11,880	0.88	33	123,000	2.84	73	603,000	6.27
½	12,470	0.90	34	131,000	2.92	74	619,000	6.36
¾	13,070	0.92	35	139,000	3.01	75	636,000	6.44

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 125.7$ $f_s = 18{,}000$

$p = 0.00801$ $f_c = 750$ $n = 15$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	126	0.10	11	15,200	1.06	36	163,000	3.46
¼	196	0.12	¼	15,900	1.08	37	172,000	3.56
½	283	0.14	½	16,600	1.11	38	182,000	3.65
¾	385	0.17	¾	17,400	1.13	39	191,000	3.75
2	503	0.19	12	18,100	1.15	40	201,000	3.84
¼	636	0.22	½	19,600	1.20	41	211,000	3.94
½	786	0.24	13	21,200	1.25	42	222,000	4.04
¾	951	0.26	½	22,900	1.30	43	232,000	4.13
3	1,131	0.29	14	24,600	1.35	44	243,000	4.23
¼	1,328	0.31	½	26,400	1.39	45	255,000	4.33
½	1,540	0.34	15	28,300	1.44	46	266,000	4.42
¾	1,770	0.36	½	30,200	1.49	47	278,000	4.52
4	2,010	0.38	16	32,200	1.54	48	290,000	4.61
¼	2,270	0.41	½	34,200	1.59	49	302,000	4.71
½	2,550	0.43	17	36,300	1.63	50	314,000	4.81
¼	2,840	0.46	½	38,500	1.68	51	327,000	4.90
5	3,140	0.48	18	40,700	1.73	52	340,000	5.00
¼	3,460	0.50	½	43,000	1.78	53	353,000	5.09
½	3,800	0.53	19	45,400	1.83	54	367,000	5.19
¾	4,160	0.55	½	47,800	1.87	55	380,000	5.29
6	4,530	0.58	20	50,300	1.92	56	394,000	5.38
¼	4,910	0.60	½	52,800	1.97	57	408,000	5.48
½	5,310	0.62	21	55,400	2.02	58	423,000	5.57
¾	5,730	0.65	½	58,100	2.07	59	438,000	5.67
7	6,160	0.67	22	60,800	2.11	60	453,000	5.77
¼	6,610	0.70	½	63,600	2.16	61	468,000	5.86
½	7,070	0.72	23	66,500	2.21	62	483,000	5.96
¾	7,550	0.74	½	69,400	2.26	63	499,000	6.06
8	8,040	0.77	24	72,400	2.31	64	515,000	6.15
¼	8,560	0.79	25	78,600	2.40	65	531,000	6.25
½	9,080	0.82	26	85,000	2.50	66	548,000	6.34
¾	9,620	0.84	27	91,600	2.60	67	564,000	6.44
9	10,180	0.86	28	98,500	2.69	68	581,000	6.54
¼	10,750	0.89	29	106,000	2.79	69	598,000	6.63
½	11,340	0.91	30	113,000	2.88	70	616,000	6.73
¾	11,950	0.94	31	121,000	2.98	71	634,000	6.82
10	12,570	0.96	32	129,000	3.08	72	652,000	6.92
¼	13,210	0.99	33	137,000	3.17	73	670,000	7.02
½	13,860	1.01	34	145,000	3.27	74	688,000	7.11
¾	14,530	1.03	35	154,000	3.36	75	707,000	7.21

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

R = 138.7 f_s = 18,000

p = 0.00890 f_c = 800 n = 15

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	139	0.11	11	16,800	1.17	36	180,000	3.84
¼	217	0.13	¼	17,600	1.20	37	190,000	3.95
½	312	0.16	½	18,300	1.23	38	200,000	4.06
¾	425	0.19	¾	19,100	1.25	39	211,000	4.17
2	555	0.21	12	20,000	1.28	40	222,000	4.27
¼	702	0.24	½	21,700	1.33	41	233,000	4.38
½	867	0.27	13	23,400	1.39	42	245,000	4.49
¾	1,049	0.29	½	25,300	1.44	43	256,000	4.59
3	1,248	0.32	14	27,200	1.50	44	269,000	4.70
¼	1,465	0.35	½	29,200	1.55	45	281,000	4.81
½	1,700	0.37	15	31,200	1.60	46	293,000	4.91
¾	1,950	0.40	½	33,300	1.66	47	306,000	5.02
4	2,220	0.43	16	35,500	1.71	48	320,000	5.13
¼	2,510	0.45	½	37,800	1.76	49	333,000	5.23
½	2,810	0.48	17	40,100	1.82	50	347,000	5.34
¾	3,130	0.51	½	42,500	1.87	51	361,000	5.45
5	3,470	0.53	18	44,900	1.92	52	375,000	5.55
¼	3,820	0.56	½	47,500	1.98	53	390,000	5.66
½	4,200	0.59	19	50,100	2.03	54	404,000	5.77
¾	4,590	0.61	½	52,700	2.08	55	420,000	5.87
6	4,990	0.64	20	55,500	2.14	56	435,000	5.98
¼	5,420	0.67	½	58,300	2.19	57	451,000	6.09
½	5,860	0.69	21	61,200	2.24	58	467,000	6.19
¾	6,320	0.72	½	64,100	2.30	59	483,000	6.30
7	6,800	0.75	22	67,100	2.35	60	499,000	6.41
¼	7,290	0.75	½	70,200	2.40	61	516,000	6.51
½	7,800	0.80	23	73,400	2.46	62	533,000	6.62
¾	8,330	0.83	½	76,600	2.51	63	550,000	6.73
8	8,880	0.85	24	79,900	2.56	64	568,000	6.84
¼	9,440	0.88	25	86,700	2.67	65	586,000	6.94
½	10,020	0.91	26	93,800	2.78	66	604,000	7.05
¾	10,620	0.93	27	101,000	2.88	67	623,000	7.16
9	11,230	0.96	28	109,000	2.99	68	641,000	7.26
¼	11,870	0.99	29	117,000	3.10	69	660,000	7.37
½	12,520	1.01	30	125,000	3.20	70	680,000	7.48
¾	13,190	1.04	31	133,000	3.31	71	699,000	7.58
10	13,870	1.07	32	142,000	3.42	72	719,000	7.69
¼	14,570	1.09	33	151,000	3.52	73	739,000	7.80
½	15,300	1.12	34	160,000	3.63	74	760,000	7.90
¾	16,000	1.15	35	170,000	3.74	75	780,000	8.01

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 88.35$ $f_s = 18{,}000$

$p = 0.00546$ $f_c = 650$ $n = 12$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	88	0.07	11	10,690	0.72	36	114,000	2.36
¼	138	0.08	¼	11,180	0.74	37	121,000	2.42
½	199	0.10	½	11,680	0.75	38	128,000	2.49
¾	271	0.11	¾	12,200	0.77	39	134,000	2.56
2	353	0.13	12	12,720	0.79	40	141,000	2.62
¼	447	0.15	½	13,800	0.82	41	149,000	2.69
½	552	0.16	13	14,930	0.85	42	156,000	2.75
¾	668	0.18	½	16,100	0.88	43	163,000	2.82
3	795	0.20	14	17,300	0.92	44	171,000	2.88
¼	933	0.21	½	18,600	0.95	45	179,000	2.95
½	1,082	0.23	15	19,900	0.98	46	187,000	3.01
¾	1,242	0.25	½	21,200	1.02	47	195,000	3.08
4	1,414	0.26	16	22,600	1.05	48	204,000	3.14
¼	1,600	0.28	½	24,100	1.08	49	212,000	3.21
½	1,790	0.29	17	25,500	1.11	50	221,000	3.28
¾	1,990	0.31	½	27,100	1.15	51	230,000	3.34
5	2,210	0.33	18	28,600	1.18	52	239,000	3.41
¼	2,440	0.34	½	30,200	1.21	53	248,000	3.47
½	2,670	0.36	19	31,900	1.24	54	258,000	3.54
¾	2,920	0.38	½	33,600	1.28	55	267,000	3.60
6	3,180	0.39	20	35,300	1.31	56	277,000	3.67
¼	3,450	0.41	½	37,100	1.34	57	287,000	3.73
½	3,730	0.43	21	39,000	1.38	58	297,000	3.80
¾	4,020	0.44	½	40,800	1.41	59	308,000	3.87
7	4,330	0.46	22	42,800	1.44	60	318,000	3.93
¼	4,640	0.48	½	44,700	1.47	61	329,000	4.00
½	4,970	0.49	23	46,700	1.51	62	340,000	4.06
¾	5,310	0.51	½	48,800	1.54	63	351,000	4.13
8	5,650	0.52	24	50,900	1.57	64	362,000	4.19
¼	6,010	0.54	25	55,200	1.64	65	373,000	4.26
½	6,380	0.56	26	59,700	1.70	66	385,000	4.32
¾	6,760	0.57	27	64,400	1.77	67	397,000	4.39
9	7,160	0.59	28	69,300	1.83	68	409,000	4.46
¼	7,560	0.61	29	74,300	1.90	69	421,000	4.52
½	7,970	0.62	30	79,500	1.97	70	433,000	4.59
¾	8,400	0.64	31	84,900	2.03	71	445,000	4.65
10	8,840	0.66	32	90,500	2.10	72	458,000	4.72
¼	9,280	0.67	33	96,200	2.16	73	471,000	4.78
½	9,740	0.69	34	102,000	2.23	74	484,000	4.85
¾	10,210	0.70	35	108,000	2.29	75	497,000	4.91

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 99.55$ $f_s = 18{,}000$ $n = 12$

$p = 0.00619$ $f_c = 700$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	100	0.07	11	12,050	0.82	36	129,000	2.67
¼	156	0.09	¼	12,600	0.84	37	136,000	2.75
½	224	0.11	½	13,160	0.85	38	144,000	2.82
¾	305	0.13	¾	13,740	0.87	39	151,000	2.90
2	398	0.15	12	14,340	0.89	40	159,000	2.97
¼	504	0.17	½	15,600	0.93	41	167,000	3.05
½	622	0.19	13	16,800	0.97	42	176,000	3.12
¾	753	0.20	½	18,100	1.00	43	184,000	3.19
3	896	0.22	14	19,500	1.04	44	193,000	3.27
¼	1,051	0.24	½	20,900	1.08	45	202,000	3.34
½	1,219	0.26	15	22,400	1.11	46	211,000	3.42
¾	1,400	0.28	½	23,900	1.15	47	220,000	3.49
4	1,590	0.30	16	25,500	1.19	48	229,000	3.57
¼	1,800	0.32	½	27,100	1.23	49	239,000	3.64
½	2,020	0.33	17	28,800	1.26	50	249,000	3.71
¾	2,250	0.35	½	30,500	1.30	51	259,000	3.79
5	2,490	0.37	18	32,300	1.34	52	269,000	3.86
¼	2,740	0.39	½	34,100	1.37	53	280,000	3.94
½	3,010	0.41	19	35,900	1.41	54	290,000	4.01
¾	3,290	0.43	½	37,900	1.45	55	301,000	4.09
6	3,580	0.45	20	39,800	1.49	56	312,000	4.16
¼	3,890	0.46	½	41,800	1.52	57	323,000	4.23
½	4,210	0.48	21	43,900	1.56	58	335,000	4.31
¾	4,540	0.50	½	46,000	1.60	59	347,000	4.38
7	4,880	0.52	22	48,200	1.63	60	358,000	4.46
¼	5,230	0.54	½	50,400	1.67	61	370,000	4.53
½	5,600	0.56	23	52,700	1.71	62	383,000	4.61
¾	5,980	0.58	½	55,000	1.75	63	395,000	4.68
8	6,370	0.59	24	57,300	1.78	64	408,000	4.75
¼	6,780	0.61	25	62,200	1.86	65	421,000	4.83
½	7,190	0.63	26	67,300	1.93	66	434,000	4.90
¾	7,620	0.65	27	72,600	2.01	67	447,000	4.98
9	8,060	0.67	28	78,000	2.08	68	460,000	5.05
¼	8,520	0.69	29	83,700	2.15	69	474,000	5.13
½	8,980	0.71	30	89,600	2.23	70	488,000	5.20
¾	9,460	0.72	31	95,700	2.30	71	502,000	5.27
10	9,950	0.74	32	102,000	2.38	72	516,000	5.35
¼	10,460	0.76	33	108,000	2.45	73	530,000	5.42
½	10,970	0.78	34	115,000	2.53	74	545,000	5.50
¾	11,500	0.80	35	122,000	2.60	75	560,000	5.57

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 111.1$ $f_s = 18{,}000$

$p = 0.00694$ $f_c = 750$ $n = 12$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	111	0.08	11	13,440	0.92	36	144,000	3.00
¼	174	0.10	¼	14,060	0.94	37	152,000	3.08
½	250	0.12	½	14,690	0.96	38	160,000	3.16
¾	340	0.15	¾	15,300	0.98	39	169,000	3.25
2	444	0.17	12	16,000	1.00	40	178,000	3.33
¼	562	0.19	½	17,400	1.04	41	187,000	3.41
½	694	0.21	13	18,800	1.08	42	196,000	3.50
¾	840	0.23	½	20,200	1.12	43	205,000	3.58
3	1,000	0.25	14	21,800	1.17	44	215,000	3.66
¼	1,174	0.27	½	23,400	1.21	45	225,000	3.75
½	1,361	0.29	15	25,000	1.25	46	235,000	3.83
¾	1,560	0.31	½	26,700	1.29	47	245,000	3.91
4	1,780	0.33	16	28,400	1.33	48	256,000	4.00
¼	2,010	0.35	½	30,200	1.37	49	267,000	4.08
½	2,250	0.37	17	32,100	1.42	50	278,000	4.16
¾	2,510	0.40	½	34,000	1.46	51	289,000	4.25
5	2,780	0.42	18	36,000	1.50	52	300,000	4.33
¼	3,060	0.44	½	38,000	1.54	53	312,000	4.41
½	3,360	0.46	19	40,100	1.58	54	324,000	4.50
¾	3,670	0.48	½	42,200	1.62	55	336,000	4.58
6	4,000	0.50	20	44,400	1.67	56	348,000	4.66
¼	4,340	0.52	½	46,700	1.71	57	361,000	4.75
½	4,690	0.54	21	49,000	1.75	58	374,000	4.83
¾	5,060	0.56	½	51,400	1.79	59	387,000	4.91
7	5,440	0.58	22	53,800	1.83	60	400,000	5.00
¼	5,840	0.60	½	56,200	1.87	61	413,000	5.08
½	6,250	0.62	23	58,800	1.92	62	427,000	5.16
¾	6,670	0.65	½	61,400	1.96	63	441,000	5.25
8	7,110	0.67	24	64,000	2.00	64	455,000	5.33
¼	7,560	0.69	25	69,400	2.08	65	469,000	5.41
½	8,030	0.71	26	75,100	2.17	66	484,000	5.50
¾	8,510	0.73	27	81,000	2.25	67	499,000	5.58
9	9,000	0.75	28	87,100	2.33	68	514,000	5.66
¼	9,510	0.77	29	93,400	2.42	69	529,000	5.75
½	10,030	0.79	30	100,000	2.50	70	544,000	5.83
¾	10,560	0.81	31	107,000	2.58	71	560,000	5.91
10	11,110	0.83	32	114,000	2.66	72	576,000	6.00
¼	11,670	0.85	33	121,000	2.75	73	592,000	6.08
½	12,250	0.87	34	128,000	2.83	74	608,000	6.16
¾	12,840	0.90	35	136,000	2.91	75	625,000	6.25

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 123.0$ $f_s = 18{,}000$

$p = 0.00773$ $f_c = 800$ $n = 12$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	123	0.09	11	14,880	1.02	36	159,000	3.34
¼	192	0.12	¼	15,600	1.04	37	168,000	3.43
½	277	0.14	½	16,300	1.07	38	178,000	3.52
¾	377	0.16	¾	17,000	1.09	39	187,000	3.62
2	492	0.19	12	17,700	1.11	40	197,000	3.71
¼	623	0.21	½	19,200	1.16	41	207,000	3.80
½	769	0.23	13	20,800	1.21	42	217,000	3.90
¾	930	0.26	½	22,400	1.25	43	227,000	3.99
3	1,107	0.28	14	24,100	1.30	44	238,000	4.08
¼	1,299	0.30	½	25,900	1.35	45	249,000	4.17
½	1,510	0.32	15	27,700	1.39	46	260,000	4.27
¾	1,730	0.35	½	29,600	1.44	47	272,000	4.36
4	1,970	0.37	16	31,500	1.48	48	283,000	4.45
¼	2,220	0.39	½	33,500	1.53	49	295,000	4.55
½	2,490	0.42	17	35,500	1.58	50	307,000	4.64
¾	2,780	0.44	½	37,700	1.62	51	320,000	4.73
5	3,080	0.46	18	39,900	1.67	52	333,000	4.82
¼	3,390	0.49	½	42,100	1.72	53	346,000	4.92
½	3,720	0.51	19	44,400	1.76	54	359,000	5.01
¾	4,070	0.53	½	46,800	1.81	55	372,000	5.10
6	4,430	0.56	20	49,200	1.86	56	386,000	5.19
¼	4,800	0.58	½	51,700	1.90	57	400,000	5.29
½	5,200	0.60	21	54,200	1.95	58	414,000	5.38
¾	5,600	0.63	½	56,900	1.99	59	428,000	5.47
7	6,030	0.65	22	59,500	2.04	60	443,000	5.57
¼	6,470	0.67	½	62,300	2.09	61	458,000	5.66
½	6,920	0.70	23	65,100	2.13	62	473,000	5.75
¾	7,390	0.72	½	67,900	2.18	63	488,000	5.84
8	7,870	0.74	24	70,800	2.23	64	504,000	5.94
¼	8,370	0.77	25	76,900	2.32	65	520,000	6.03
½	8,890	0.79	26	83,100	2.41	66	536,000	6.12
¾	9,420	0.81	27	89,700	2.50	67	552,000	6.21
9	9,960	0.83	28	96,400	2.60	68	569,000	6.31
¼	10,520	0.86	29	103,000	2.69	69	586,000	6.40
½	11,100	0.88	30	111,000	2.78	70	603,000	6.49
¾	11,690	0.90	31	118,000	2.88	71	620,000	6.59
10	12,300	0.93	32	126,000	2.97	72	638,000	6.68
¼	12,920	0.95	33	134,000	3.06	73	655,000	6.77
½	13,560	0.97	34	142,000	3.15	74	674,000	6.86
¾	14,210	1.00	35	151,000	3.25	75	692,000	6.96

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 94.88$ $f_s = 20{,}000$

$p = 0.00532$ $f_c = 650$ $n = 15$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	95	0.06	11	11,480	0.70	36	123,000	2.30
¼	148	0.08	¼	12,010	0.72	37	130,000	2.36
½	213	0.10	½	12,550	0.73	38	137,000	2.43
¾	291	0.11	¾	13,100	0.75	39	144,000	2.49
2	380	0.13	12	13,660	0.77	40	152,000	2.55
¼	480	0.14	½	14,820	0.80	41	159,000	2.62
½	593	0.16	13	16,000	0.83	42	167,000	2.68
¾	718	0.18	½	17,300	0.86	43	175,000	2.75
3	854	0.19	14	18,600	0.89	44	184,000	2.81
¼	1,002	0.21	½	19,900	0.93	45	192,000	2.87
½	1,162	0.22	15	21,300	0.96	46	201,000	2.94
¾	1,334	0.24	½	22,800	0.99	47	210,000	3.00
4	1,520	0.26	16	24,300	1.02	48	219,000	3.06
¼	1,710	0.27	½	25,800	1.05	49	228,000	3.13
½	1,910	0.29	17	27,400	1.09	50	237,000	3.19
¾	2,140	0.30	½	29,100	1.12	51	247,000	3.26
5	2,370	0.32	18	30,700	1.15	52	257,000	3.32
¼	2,620	0.34	½	32,500	1.18	53	267,000	3.38
½	2,870	0.35	19	34,300	1.21	54	277,000	3.45
¾	3,140	0.37	½	36,100	1.24	55	287,000	3.51
6	3,420	0.38	20	38,000	1.28	56	298,000	3.58
¼	3,710	0.40	½	39,900	1.31	57	308,000	3.64
½	4,010	0.41	21	41,800	1.34	58	319,000	3.70
¾	4,320	0.43	½	43,900	1.37	59	330,000	3.77
7	4,650	0.45	22	45,900	1.40	60	342,000	3.83
¼	4,990	0.46	½	48,000	1.44	61	353,000	3.89
½	5,340	0.48	23	50,200	1.47	62	365,000	3.96
¾	5,700	0.49	½	52,400	1.50	63	377,000	4.02
8	6,070	0.51	24	54,700	1.53	64	389,000	4.09
¼	6,460	0.53	25	59,300	1.60	65	401,000	4.15
½	6,860	0.54	26	64,100	1.66	66	413,000	4.21
¾	7,260	0.56	27	69,200	1.72	67	426,000	4.28
9	7,690	0.57	28	74,400	1.79	68	439,000	4.34
¼	8,120	0.59	29	79,800	1.85	69	452,000	4.40
½	8,560	0.61	30	85,400	1.92	70	465,000	4.47
¾	9,020	0.62	31	91,200	1.98	71	478,000	4.53
10	9,490	0.64	32	97,200	2.04	72	492,000	4.60
¼	9,970	0.65	33	103,000	2.11	73	506,000	4.66
½	10,460	0.67	34	110,000	2.17	74	520,000	4.72
¾	10,960	0.69	35	116,000	2.23	75	534,000	4.79

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 106.7$ $f_s = 20{,}000$

$p = 0.00603$ $f_c = 700$ $n = 15$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	107	0.07	11	12,910	0.80	36	138,000	2.60
¼	167	0.09	¼	13,500	0.81	37	146,000	2.68
½	240	0.11	½	14,110	0.83	38	154,000	2.75
¾	327	0.13	¾	14,730	0.85	39	162,000	2.82
2	427	0.14	12	15,400	0.87	40	171,000	2.89
¼	540	0.16	½	16,700	0.90	41	179,000	2.97
½	667	0.18	13	18,000	0.94	42	188,000	3.04
¾	807	0.20	½	19,400	0.98	43	197,000	3.11
3	960	0.22	14	20,900	1.01	44	207,000	3.18
¼	1,127	0.24	½	22,400	1.05	45	216,000	3.26
½	1,307	0.25	15	24,000	1.09	46	226,000	3.33
¾	1,500	0.27	½	25,600	1.12	47	236,000	3.40
4	1,710	0.29	16	27,300	1.16	48	246,000	3.47
¼	1,930	0.31	½	29,000	1.19	49	256,000	3.55
½	2,160	0.33	17	30,800	1.23	50	267,000	3.62
¾	2,410	0.34	½	32,700	1.27	51	278,000	3.69
5	2,670	0.36	18	34,600	1.30	52	289,000	3.76
¼	2,940	0.38	½	36,500	1.34	53	300,000	3.84
½	3,230	0.40	19	38,500	1.37	54	311,000	3.91
¾	3,530	0.42	½	40,600	1.41	55	323,000	3.98
6	3,840	0.43	20	42,700	1.45	56	335,000	4.05
¼	4,170	0.45	½	44,800	1.48	57	347,000	4.12
½	4,510	0.47	21	47,100	1.52	58	359,000	4.20
¾	4,860	0.49	½	49,300	1.56	59	371,000	4.27
7	5,230	0.51	22	51,600	1.59	60	384,000	4.34
¼	5,610	0.52	½	54,000	1.63	61	397,000	4.41
½	6,000	0.54	23	56,400	1.66	62	410,000	4.49
¾	6,410	0.56	½	58,900	1.70	63	423,000	4.56
8	6,830	0.58	24	61,500	1.74	64	437,000	4.63
¼	7,260	0.60	25	66,700	1.81	65	451,000	4.70
½	7,710	0.62	26	72,100	1.88	66	465,000	4.78
¾	8,170	0.63	27	77,800	1.95	67	479,000	4.85
9	8,640	0.65	28	83,700	2.03	68	493,000	4.92
¼	9,130	0.67	29	89,700	2.10	69	508,000	4.99
½	9,630	0.69	30	96,000	2.17	70	523,000	5.07
¾	10,140	0.71	31	103,000	2.24	71	538,000	5.14
10	10,670	0.72	32	109,000	2.32	72	553,000	5.21
¼	11,210	0.74	33	116,000	2.39	73	569,000	5.28
½	11,760	0.76	34	123,000	2.46	74	584,000	5.35
¾	12,330	0.78	35	131,000	2.53	75	600,000	5.43

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 118.8$ $f_s = 20{,}000$

$p = 0.00675$ $f_c = 750$ $n = 15$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	119	0.08	11	14,370	0.89	36	154,000	2.92
¼	186	0.10	¼	15,000	0.91	37	163,000	3.00
½	267	0.12	½	15,700	0.93	38	172,000	3.08
¾	364	0.14	¾	16,400	0.95	39	181,000	3.16
2	475	0.16	12	17,100	0.97	40	190,000	3.24
¼	601	0.18	½	18,600	1.01	41	200,000	3.32
½	742	0.20	13	20,100	1.05	42	210,000	3.40
¾	898	0.22	½	21,700	1.09	43	220,000	3.48
3	1,069	0.24	14	23,300	1.13	44	230,000	3.56
¼	1,255	0.26	½	25,000	1.17	45	241,000	3.65
½	1,455	0.28	15	26,700	1.21	46	251,000	3.73
¾	1,670	0.30	½	28,500	1.26	47	262,000	3.81
4	1,900	0.32	16	30,400	1.30	48	274,000	3.89
¼	2,150	0.34	½	32,300	1.34	49	285,000	3.97
½	2,410	0.36	17	34,300	1.38	50	297,000	4.05
¾	2,680	0.38	½	36,400	1.42	51	309,000	4.13
5	2,970	0.40	18	38,500	1.46	52	321,000	4.21
¼	3,270	0.43	½	40,700	1.50	53	334,000	4.29
½	3,590	0.45	19	42,900	1.54	54	346,000	4.37
¾	3,930	0.47	½	45,200	1.58	55	359,000	4.46
6	4,280	0.49	20	47,500	1.62	56	373,000	4.54
¼	4,640	0.51	½	49,900	1.66	57	386,000	4.62
½	5,020	0.53	21	52,400	1.70	58	400,000	4.70
¾	5,410	0.55	½	54,900	1.74	59	414,000	4.78
7	5,820	0.57	22	57,500	1.78	60	428,000	4.86
¼	6,240	0.59	½	60,100	1.82	61	442,000	4.94
½	6,680	0.61	23	62,800	1.86	62	457,000	5.02
¾	7,140	0.63	½	65,600	1.90	63	472,000	5.10
8	7,600	0.65	24	68,400	1.94	64	487,000	5.18
¼	8,090	0.67	25	74,200	2.02	65	502,000	5.27
½	8,580	0.69	26	80,300	2.11	66	517,000	5.35
¾	9,100	0.71	27	86,600	2.19	67	533,000	5.43
9	9,620	0.73	28	93,100	2.27	68	549,000	5.51
¼	10,160	0.75	29	99,900	2.35	69	566,000	5.59
½	10,720	0.77	30	107,000	2.43	70	582,000	5.67
¾	11,290	0.79	31	114,000	2.51	71	599,000	5.75
10	11,880	0.81	32	122,000	2.59	72	616,000	5.83
¼	12,480	0.83	33	129,000	2.67	73	633,000	5.91
½	13,100	0.85	34	137,000	2.75	74	651,000	5.99
¾	13,730	0.87	35	146,000	2.84	75	668,000	6.08

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

R = 131.2 f_s = 20,000

p = 0.00750 f_c = 800 n = 15

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	131	0.09	11	15,900	0.99	36	170,000	3.24
¼	205	0.11	¼	16,600	1.01	37	180,000	3.33
½	295	0.13	½	17,400	1.04	38	189,000	3.42
¾	402	0.16	¾	18,100	1.06	39	200,000	3.51
2	525	0.18	12	18,900	1.08	40	210,000	3.60
¼	664	0.20	½	20,500	1.13	41	221,000	3.69
½	820	0.23	13	22,200	1.17	42	231,000	3.78
¾	992	0.25	½	23,900	1.22	43	243,000	3.87
3	1,181	0.27	14	25,700	1.26	44	254,000	3.96
¼	1,386	0.29	½	27,600	1.31	45	266,000	4.05
½	1,610	0.32	15	29,500	1.35	46	278,000	4.14
¾	1,850	0.34	½	31,500	1.40	47	290,000	4.23
4	2,100	0.36	16	33,600	1.44	48	302,000	4.32
¼	2,370	0.38	½	35,700	1.49	49	315,000	4.41
½	2,660	0.41	17	37,900	1.53	50	328,000	4.50
¾	2,960	0.43	½	40,200	1.58	51	341,000	4.59
5	3,280	0.45	18	42,500	1.62	52	355,000	4.68
¼	3,620	0.47	½	44,900	1.67	53	369,000	4.77
½	3,970	0.50	19	47,400	1.71	54	383,000	4.86
¾	4,340	0.52	½	49,900	1.76	55	397,000	4.95
6	4,720	0.54	20	52,500	1.80	56	411,000	5.04
¼	5,120	0.56	½	55,100	1.85	57	426,000	5.13
½	5,540	0.59	21	57,900	1.89	58	441,000	5.22
¾	5,980	0.61	½	60,600	1.94	59	457,000	5.31
7	6,430	0.63	22	63,500	1.98	60	472,000	5.40
¼	6,900	0.65	½	66,400	2.03	61	488,000	5.49
½	7,380	0.68	23	69,400	2.07	62	504,000	5.58
¾	7,880	0.70	½	72,500	2.12	63	521,000	5.67
8	8,400	0.72	24	75,600	2.16	64	537,000	5.76
¼	8,930	0.74	25	82,000	2.25	65	554,000	5.85
½	9,480	0.77	26	88,700	2.34	66	572,000	5.94
¾	10,040	0.79	27	95,600	2.43	67	589,000	6.03
9	10,630	0.81	28	103,000	2.52	68	607,000	6.12
¼	11,230	0.83	29	110,000	2.61	69	625,000	6.21
½	11,840	0.86	30	118,000	2.70	70	643,000	6.30
¾	12,470	0.88	31	126,000	2.79	71	661,000	6.39
10	13,120	0.90	32	134,000	2.88	72	680,000	6.48
¼	13,780	0.92	33	143,000	2.97	73	699,000	6.57
½	14,460	0.95	34	152,000	3.06	74	718,000	6.66
¾	15,200	0.97	35	161,000	3.15	75	738,000	6.75

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

R = 82.66 f_s = 20,000

p = 0.00456 f_c = 650 n = 12

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	83	0.05	11	10,000	0.60	36	107,000	1.97
¼	129	0.07	¼	10,460	0.62	37	113,000	2.02
½	186	0.08	½	10,930	0.63	38	119,000	2.08
¾	253	0.10	¾	11,410	0.64	39	126,000	2.13
2	331	0.11	12	11,900	0.66	40	132,000	2.19
¼	419	0.12	½	12,920	0.68	41	139,000	2.24
½	517	0.14	13	13,970	0.71	42	146,000	2.30
¾	625	0.15	½	15,100	0.74	43	153,000	2.35
3	744	0.16	14	16,200	0.77	44	160,000	2.41
¼	873	0.18	½	17,400	0.79	45	167,000	2.46
½	1,013	0.19	15	18,600	0.82	46	175,000	2.52
¾	1,162	0.21	½	19,900	0.85	47	183,000	2.57
4	1,323	0.22	16	21,200	0.88	48	190,000	2.63
¼	1,493	0.23	½	22,500	0.90	49	198,000	2.68
½	1,670	0.25	17	23,900	0.93	50	207,000	2.74
¾	1,870	0.26	½	25,300	0.96	51	215,000	2.79
5	2,070	0.27	18	26,800	0.98	52	224,000	2.85
¼	2,280	0.29	½	28,300	1.01	53	232,000	2.90
½	2,500	0.30	19	29,800	1.04	54	241,000	2.95
¾	2,730	0.31	½	31,400	1.07	55	250,000	3.01
6	2,980	0.33	20	33,100	1.09	56	259,000	3.06
¼	3,230	0.34	½	34,700	1.12	57	269,000	3.12
½	3,490	0.36	21	36,500	1.15	58	278,000	3.17
¾	3,770	0.37	½	38,200	1.18	59	288,000	3.23
7	4,050	0.38	22	40,000	1.20	60	298,000	3.28
¼	4,340	0.40	½	41,800	1.23	61	308,000	3.34
½	4,650	0.41	23	43,700	1.26	62	318,000	3.39
¾	4,960	0.42	½	45,600	1.29	63	328,000	3.45
8	5,290	0.44	24	47,600	1.31	64	339,000	3.50
¼	5,630	0.45	25	51,700	1.37	65	349,000	3.56
½	5,970	0.47	26	55,900	1.42	66	360,000	3.61
¾	6,330	0.48	27	60,300	1.48	67	371,000	3.67
9	6,700	0.49	28	64,800	1.53	68	382,000	3.72
¼	7,070	0.51	29	69,500	1.59	69	394,000	3.78
½	7,460	0.52	30	74,400	1.64	70	405,000	3.83
¾	7,860	0.53	31	79,400	1.70	71	417,000	3.89
10	8,270	0.55	32	84,600	1.75	72	429,000	3.94
¼	8,680	0.56	33	90,000	1.81	73	440,000	3.99
½	9,110	0.57	34	95,600	1.86	74	453,000	4.05
¾	9,550	0.59	35	101,000	1.92	75	465,000	4.10

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 93.14$ $f_s = 20{,}000$ $n = 12$

$p = 0.00518$ $f_c = 700$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	93	0.06	11	11,270	0.68	36	121,000	2.24
¼	146	0.08	¼	11,790	0.70	37	128,000	2.30
½	210	0.09	½	12,320	0.71	38	134,000	2.36
¾	285	0.11	¾	12,860	0.73	39	142,000	2.42
2	373	0.12	12	13,410	0.75	40	149,000	2.49
¼	472	0.14	½	14,550	0.78	41	157,000	2.55
½	582	0.16	13	15,700	0.81	42	164,000	2.61
¾	704	0.17	½	17,000	0.84	43	172,000	2.67
3	838	0.19	14	18,300	0.87	44	180,000	2.74
¼	984	0.20	½	19,600	0.90	45	189,000	2.80
½	1,141	0.22	15	21,000	0.93	46	197,000	2.86
¾	1,310	0.23	½	22,400	0.96	47	206,000	2.92
4	1,490	0.25	16	23,800	0.99	48	215,000	2.98
¼	1,680	0.26	½	25,400	1.03	49	224,000	3.05
½	1,890	0.28	17	26,900	1.06	50	233,000	3.11
¾	2,100	0.30	½	28,500	1.09	51	242,000	3.17
5	2,330	0.31	18	30,200	1.12	52	252,000	3.23
¼	2,570	0.33	½	31,900	1.15	53	262,000	3.29
½	2,820	0.34	19	33,600	1.18	54	272,000	3.36
¾	3,080	0.36	½	35,400	1.21	55	282,000	3.42
6	3,350	0.37	20	37,300	1.24	56	292,000	3.48
¼	3,640	0.39	½	39,100	1.27	57	303,000	3.54
½	3,940	0.40	21	41,100	1.31	58	313,000	3.61
¾	4,240	0 42	½	43,100	1.34	59	324,000	3.67
7	4,560	0.44	22	45,100	1.37	60	335,000	3.73
¼	4,900	0.45	½	47,200	1.40	61	347,000	3.79
½	5,240	0.47	23	49,300	1.43	62	358,000	3.85
¾	5,590	0.48	½	51,400	1.46	63	370,000	3.92
8	5,960	0.50	24	53,600	1.49	64	382,000	3.98
¼	6,340	0.51	25	58,200	1.55	65	394,000	4.04
½	6,730	0.53	26	63,000	1.62	66	406,000	4.10
¾	7,130	0.54	27	67,900	1.68	67	418,000	4.16
9	7,540	0.56	28	73,000	1.74	68	431,000	4.23
¼	7,970	0.57	29	78,300	1.80	69	443,000	4.29
½	8,410	0.59	30	83,800	1.86	70	456,000	4.35
¾	8,850	0.61	31	89,500	1.93	71	470,000	4.41
10	9,310	0.62	32	95,400	1.99	72	483,000	4.48
¼	9,790	0.64	33	101,000	2.05	73	496,000	4.54
½	10,270	0.65	34	108,000	2.11	74	510,000	4.60
¾	10,760	0.67	35	114,000	2.18	75	524,000	4.66

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

$R = 104.3$ $f_s = 20{,}000$

$p = 0.00582$ $f_c = 750$ $n = 12$

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	104	0.07	11	12,600	0.77	36	135,000	2.51
¼	163	0.09	¼	13,200	0.79	37	143,000	2.58
½	235	0.10	½	13,790	0.80	38	151,000	2.65
¾	319	0.12	¾	14,400	0.82	39	159,000	2.72
2	417	0.14	12	15,000	0.84	40	167,000	2.79
¼	528	0.16	½	16,300	0.87	41	175,000	2.86
½	652	0.17	13	17,600	0.91	42	184,000	2.93
¾	789	0.19	½	19,000	0.94	43	193,000	3.00
3	939	0.21	14	20,400	0.98	44	202,000	3.07
¼	1,102	0.23	½	21,900	1.01	45	211,000	3.14
½	1,278	0.24	15	23,500	1.05	46	221,000	3.21
¾	1,467	0.26	½	25,100	1.08	47	230,000	3.28
4	1,670	0.28	16	26,700	1.12	48	240,000	3.35
¼	1,880	0.30	½	28,400	1.15	49	250,000	3.42
½	2,110	0.31	17	30,100	1.19	50	261,000	3.49
¾	2,350	0.33	½	31,900	1.22	51	271,000	3.56
5	2,610	0.35	18	33,800	1.26	52	282,000	3.63
¼	2,870	0.37	½	35,700	1.29	53	293,000	3.70
½	3,150	0.38	19	37,700	1.33	54	304,000	3.77
¾	3,450	0.40	½	39,700	1.36	55	316,000	3.84
6	3,750	0.42	20	41,700	1.40	56	327,000	3.91
¼	4,070	0.44	½	43,800	1.43	57	339,000	3.98
½	4,410	0.45	21	46,000	1.47	58	351,000	4.05
¾	4,750	0.47	½	48,200	1.50	59	363,000	4.12
7	5,110	0.49	22	50,500	1.54	60	375,000	4.19
¼	5,480	0.51	½	52,800	1.57	61	388,000	4.26
½	5,870	0.52	23	55,200	1.61	62	401,000	4.33
¾	6,260	0.54	½	57,600	1.64	63	414,000	4.40
8	6,680	0.56	24	60,100	1.68	64	427,000	4.47
¼	7,100	0.58	25	65,200	1.75	65	441,000	4.54
½	7,540	0.59	26	70,500	1.82	66	454,000	4.61
¾	7,990	0.61	27	76,000	1.89	67	468,000	4.68
9	8,450	0.63	28	81,800	1.96	68	482,000	4.75
¼	8,920	0.65	29	87,700	2.03	69	497,000	4.82
½	9,410	0.66	30	93,900	2.10	70	511,000	4.89
¾	9,920	0.68	31	100,000	2.17	71	526,000	4.96
10	10,430	0.70	32	107,000	2.23	72	541,000	5.03
¼	10,960	0.72	33	114,000	2.30	73	556,000	5.10
½	11,500	0.73	34	121,000	2.37	74	571,000	5.17
¾	12,050	0.75	35	128,000	2.44	75	587,000	5.24

SLABS AND SIMPLE BEAMS

(Bending moments in pound feet and area of steel per foot of width)

R = 115.7 f_s = 20,000

p = 0.00648 f_c = 800 n = 12

Depth in inches	Moment	Area	Depth in inches	Moment	Area	Depth in inches	Moment	Area
1	116	0.08	11	14,000	0.86	36	150,000	2.80
¼	181	0.10	¼	14,640	0.87	37	158,000	2.88
½	260	0.12	½	15,300	0.89	38	167,000	2.95
¾	354	0.14	¾	16,000	0.91	39	176,000	3.03
2	463	0.16	12	16,700	0.93	40	185,000	3.11
¼	586	0.17	½	18,100	0.97	41	194,000	3.19
½	723	0.19	13	19,600	1.01	42	204,000	3.27
¾	875	0.21	½	21,100	1.05	43	214,000	3.34
3	1,041	0.23	14	22,700	1.09	44	224,000	3.42
¼	1,222	0.25	½	24,300	1.13	45	234,000	3.50
½	1,417	0.27	15	26,000	1.17	46	245,000	3.58
¾	1,630	0.29	½	27,800	1.21	47	256,000	3.65
4	1,850	0.31	16	29,600	1.24	48	267,000	3.73
¼	2,090	0.33	½	31,500	1.28	49	278,000	3.81
½	2,340	0.35	17	33,400	1.32	50	289,000	3.89
¾	2,610	0.37	½	35,400	1.36	51	301,000	3.97
5	2,890	0.39	18	37,500	1.40	52	313,000	4.04
¼	3,190	0.41	½	39,600	1.44	53	325,000	4.12
½	3,500	0.43	19	41,800	1.48	54	337,000	4.20
¾	3,830	0.45	½	44,000	1.52	55	350,000	4.28
6	4,170	0.47	20	46,300	1.56	56	363,000	4.35
¼	4,520	0.49	½	48,600	1.59	57	376,000	4.43
½	4,890	0.51	21	51,000	1.63	58	389,000	4.51
¾	5,270	0.52	½	53,500	1.67	59	403,000	4.59
7	5,670	0.54	22	56,000	1.71	60	417,000	4.67
¼	6,080	0.56	½	58,600	1.75	61	431,000	4.74
½	6,510	0.58	23	61,200	1.79	62	445,000	4.82
¾	6,950	0.60	½	63,900	1.83	63	459,000	4.90
8	7,400	0.62	24	66,600	1.87	64	474,000	4.98
¼	7,870	0.64	25	72,300	1.94	65	489,000	5.05
½	8,360	0.66	26	78,200	2.02	66	504,000	5.13
¾	8,860	0.68	27	84,300	2.10	67	519,000	5.21
9	9,370	0.70	28	90,700	2.18	68	535,000	5.29
¼	9,900	0.72	29	97,300	2.26	69	551,000	5.37
½	10,440	0.74	30	104,000	2.33	70	567,000	5.44
¾	11,000	0.76	31	111,000	2.41	71	583,000	5.52
10	11,570	0.78	32	118,000	2.49	72	600,000	5.60
¼	12,160	0.80	33	126,000	2.57	73	617,000	5.68
½	12,760	0.82	34	134,000	2.64	74	634,000	5.75
¾	13,370	0.84	35	142,000	2.72	75	651,000	5.83

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

2-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
6	.....	.....	.....	.....	2,990	0.42	3,410	0.48
7	2,940	0.35	3,460	0.41	3,980	0.48	4,500	0.54
8	3,770	0.39	4,390	0.46	5,010	0.52	5,620	0.59
9	4,620	0.42	5,330	0.49	6,050	0.56	6,760	0.62
10	5,470	0.45	6,280	0.52	7,100	0.58	7,910	0.65
11	6,330	0.47	7,250	0.54	8,160	0.60	9,070	0.67
12	7,200	0.49	8,220	0.55	9,230	0.62	10,240	0.69
13	8,080	0.50	9,190	0.57	10,300	0.64	11,410	0.71
14	8,960	0.51	10,170	0.58	11,380	0.65	12,590	0.72
15	9,830	0.52	11,140	0.59	12,450	0.66	13,760	0.73
16	10,720	0.53	12,120	0.60	13,540	0.67	14,940	0.74
17	11,610	0.54	13,120	0.61	14,630	0.68	16,100	0.75
18	12,490	0.55	14,100	0.62	15,700	0.69	17,300	0.76
19	13,380	0.56	15,100	0.63	16,800	0.70	18,500	0.77
20	14,270	0.56	16,100	0.63	17,900	0.70	19,700	0.77
21	15,200	0.57	17,100	0.64	19,000	0.71	20,900	0.78
22	16,100	0.57	18,100	0.64	20,000	0.71	22,100	0.79
23	16,900	0.58	19,000	0.65	21,200	0.72	23,300	0.79
24	17,800	0.58	20,000	0.65	22,200	0.72	24,400	0.80

2½-Inch Slab

7	.....	.....	.....	.....	.....	.....	4,660	0.57
8	.....	.....	4,560	0.48	5,280	0.56	6,000	0.64
9	4,860	0.45	5,700	0.53	6,540	0.61	7,380	0.69
10	5,890	0.49	6,860	0.57	7,820	0.65	8,780	0.73
11	6,950	0.52	8,030	0.60	9,120	0.69	10,210	0.77
12	8,010	0.55	9,220	0.63	10,430	0.72	11,640	0.80
13	9,090	0.57	10,420	0.66	11,750	0.74	13,090	0.82
14	10,170	0.59	11,630	0.68	13,080	0.76	14,540	0.85
15	11,260	0.61	12,840	0.69	14,420	0.78	16,000	0.86
16	12,350	0.62	14,050	0.71	15,800	0.79	17,500	0.88
17	13,450	0.63	15,300	0.72	17,100	0.81	18,900	0.90
18	14,540	0.65	16,500	0.73	18,400	0.82	20,400	0.91
19	15,600	0.66	17,700	0.74	19,800	0.83	21,900	0.92
20	16,700	0.67	18,900	0.75	21,200	0.84	23,400	0.93
21	17,900	0.67	20,200	0.76	22,500	0.85	24,800	0.94
22	19,000	0.68	21,400	0.77	23,900	0.86	26,300	0.95
23	20,100	0.69	22,600	0.78	25,200	0.87	27,800	0.96
24	21,200	0.70	23,900	0.78	26,600	0.87	29,300	0.96

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

2-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
6	3,830	0.55	4,250	0.61	4,690	0.67	5,100	0.73
7	5,020	0.61	5,540	0.67	6,060	0.74	6,580	0.80
8	6,240	0.65	6,860	0.72	7,470	0.78	8,090	0.85
9	7,470	0.69	8,190	0.76	8,900	0.82	9,620	0.89
10	8,720	0.72	9,540	0.79	10,350	0.85	11,160	0.92
11	9,980	0.74	10,900	0.81	11,800	0.88	12,720	0.95
12	11,250	0.76	12,260	0.83	13,270	0.90	14,280	0.97
13	12,510	0.78	13,630	0.85	14,740	0.92	15,800	0.98
14	13,800	0.79	15,000	0.86	16,200	0.93	17,400	1.00
15	15,100	0.80	16,400	0.87	17,700	0.94	19,000	1.01
16	16,400	0.81	17,800	0.88	19,200	0.95	20,600	1.02
17	17,600	0.82	19,200	0.89	20,700	0.97	22,200	1.04
18	18,900	0.83	20,500	0.90	22,100	0.97	23,700	1.04
19	20,200	0.84	21,900	0.91	23,600	0.98	25,300	1.05
20	20,500	0.85	23,300	0.92	25,100	0.99	26,900	1.06
21	22,800	0.85	24,700	0.92	26,600	1.00	28,500	1.07
22	24,100	0.86	26,100	0.93	28,100	1.00	30,100	1.07
23	25,400	0.86	27,500	0.93	29,600	1.01	31,700	1.08
24	26,700	0.87	28,900	0.94	31,100	1.01	33,300	1.08

2½-Inch Slab

6	.....	.....	.....	.....	.....	.....	5,290	0.77
7	5,260	0.64	5,860	0.72	6,460	0.80	7,060	0.87
8	6,720	0.72	7,440	0.79	8,160	0.87	8,880	0.95
9	8,220	0.77	9,060	0.85	9,910	0.93	10,750	1.01
10	9,750	0.82	10,710	0.90	11,680	0.98	12,640	1.06
11	11,290	0.85	12,380	0.94	13,460	1.02	14,550	1.10
12	12,850	0.88	14,060	0.97	15,300	1.05	16,500	1.14
13	14,420	0.91	15,700	0.99	17,100	1.08	18,400	1.16
14	16,000	0.93	17,500	1.02	18,900	1.10	20,400	1.19
15	17,600	0.95	19,200	1.04	20,700	1.12	22,300	1.21
16	19,200	0.97	20,900	1.05	22,600	1.14	24,300	1.23
17	20,800	0.98	22,600	1.07	24,400	1.16	26,200	1.24
18	22,400	1.00	24,300	1.08	26,300	1.17	28,200	1.26
19	24,000	1.01	26,000	1.09	28,100	1.18	30,200	1.27
20	25,600	1.02	27,800	1.10	30,000	1.19	32,200	1.28
21	27,100	1.03	29,500	1.11	31,800	1.20	34,100	1.29
22	28,800	1.04	31,200	1.12	33,600	1.21	36,100	1.30
23	30,400	1.04	32,900	1.13	35,500	1.22	38,100	1.31
24	32,000	1.05	34,700	1.14	37,400	1.23	40,100	1.32

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

3-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
9	.....	.....	.....	.....	6,720	0.63	7,670	0.73
10	.....	.....	7,110	0.60	8,210	0.69	9,300	0.79
11	7,240	0.55	8,480	0.64	9,720	0.74	10,960	0.84
12	8,490	0.59	9,870	0.68	11,260	0.78	12,650	0.88
13	9,760	0.62	11,290	0.72	12,820	0.82	14,350	0.92
14	11,030	0.65	12,710	0.75	14,390	0.85	16,100	0.95
15	12,310	0.67	14,140	0.77	16,000	0.87	17,800	0.98
16	13,600	0.69	15,600	0.79	17,600	0.90	19,500	1.00
17	14,900	0.71	17,000	0.81	19,200	0.92	21,300	1.02
18	16,200	0.73	18,500	0.83	20,800	0.93	23,000	1.04
19	17,500	0.74	19,900	0.85	22,400	0.95	24,800	1.05
20	18,800	0.76	21,400	0.86	24,000	0.96	26,600	1.07
21	20,200	0.77	22,900	0.87	25,600	0.98	28,300	1.08
22	21,500	0.78	24,300	0.88	27,200	0.99	30,100	1.09
23	22,800	0.79	25,800	0.90	28,800	1.00	31,800	1.11
24	24,100	0.80	27,300	0.90	30,500	1.01	33,600	1.12
25	25,400	0.81	28,800	0.91	32,100	1.02	35,400	1.13
26	26,800	0.82	30,200	0.92	33,700	1.03	37,200	1.13
27	28,100	0.82	31,700	0.93	35,300	1.04	39,000	1.14
28	29,400	0.83	33,200	0.94	37,000	1.04	40,700	1.15
29	30,800	0.84	34,700	0.94	38,600	1.05	42,500	1.16
30	32,100	0.84	36,200	0.95	40,200	1.06	44,300	1.16
31	33,400	0.85	37,700	0.95	41,900	1.06	46,100	1.17
32	34,800	0.85	39,100	0.96	43,500	1.07	47,800	1.17
33	36,100	0.86	40,600	0.96	45,100	1.07	49,700	1.18
34	37,500	0.86	42,100	0.97	46,800	1.08	51,400	1.18
35	38,800	0.87	43,600	0.97	48,400	1.08	53,200	1.19
36	40,100	0.87	45,100	0.98	50,100	1.09	55,000	1.19

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

3-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
7	.....	.....	.....	.....	.....	.....	7,200	0.90
8	6,880	0.74	7,690	0.83	8,490	0.92	9,300	1.01
9	8,620	0.82	9,570	0.91	10,510	1.01	11,470	1.10
10	10,400	0.88	11,490	0.98	12,590	1.07	13,680	1.17
11	12,200	0.94	13,450	1.03	14,690	1.13	15,900	1.23
12	14,040	0.98	15,400	1.08	16,800	1.18	18,200	1.27
13	15,900	1.02	17,400	1.12	19,000	1.22	20,500	1.32
14	17,800	1.05	19,400	1.15	21,100	1.25	22,800	1.35
15	19,600	1.08	21,500	1.18	23,300	1.28	25,100	1.38
16	21,500	1.10	23,500	1.20	25,500	1.30	27,500	1.41
17	23,400	1.12	25,500	1.22	27,700	1.33	29,800	1.43
18	25,300	1.14	27,600	1.24	29,900	1.35	32,100	1.45
19	27,200	1.16	29,600	1.26	32,100	1.36	34,500	1.47
20	29,100	1.17	31,700	1.28	34,300	1.38	36,800	1.49
21	31,000	1.19	33,800	1.29	36,500	1.40	39,200	1.50
22	33,000	1.20	35,800	1.30	38,700	1.41	41,600	1.51
23	34,900	1.21	37,900	1.31	40,900	1.42	43,900	1.53
24	36,800	1.22	40,000	1.33	43,100	1.43	46,300	1.54
25	38,700	1.23	42,000	1.34	45,400	1.44	48,700	1.55
26	40,600	1.24	44,100	1.35	47,600	1.45	51,100	1.56
27	42,600	1.25	46,200	1.35	49,800	1.46	53,400	1.57
28	44,500	1.26	48,300	1.36	52,000	1.47	55,800	1.57
29	46,400	1.26	50,300	1.37	54,200	1.48	58,200	1.58
30	48,400	1.27	52,400	1.38	56,500	1.48	60,600	1.59
31	50,300	1.28	54,500	1.38	58,700	1.49	62,900	1.60
32	52,200	1.28	56,600	1.39	61,000	1.50	65,300	1.60
33	54,200	1.29	58,700	1.39	63,200	1.50	67,700	1.61
34	56,100	1.29	60,800	1.40	65,400	1.51	70,100	1.61
35	58,000	1.30	62,900	1.40	67,700	1.51	72,500	1.62
36	60,000	1.30	64,900	1.41	69,900	1.52	74,900	1.62

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

3½-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
10	.....	.....	.....	.....	.....	.....	9,500	0.81
11	.....	.....	8,640	0.66	10,000	0.77	11,380	0.88
12	8,660	0.60	10,210	0.71	11,760	0.82	13,300	0.94
13	10,090	0.65	11,810	0.76	13,530	0.87	15,200	0.99
14	11,550	0.68	13,400	0.80	15,300	0.91	17,200	1.03
15	13,020	0.72	15,100	0.83	17,100	0.95	19,200	1.06
16	14,500	0.75	16,700	0.86	19,000	0.98	21,200	1.10
17	16,000	0.77	18,400	0.89	20,800	1.01	23,200	1.12
18	17,500	0.79	20,100	0.91	22,700	1.03	25,200	1.15
19	19,000	0.81	21,800	0.93	24,500	1.05	27,300	1.17
20	20,500	0.83	23,500	0.95	26,400	1.07	29,300	1.19
21	22,100	0.85	25,200	0.97	28,300	1.09	31,400	1.21
22	23,600	0.86	26,900	0.99	30,100	1.11	33,400	1.23
23	25,100	0.88	28,600	1.00	32,000	1.12	35,500	1.24
24	26,700	0.89	30,300	1.01	33,900	1.13	37,500	1.26
25	28,200	0.90	32,000	1.02	35,800	1.15	39,600	1.27
26	29,700	0.91	33,700	1.04	37,700	1.16	41,600	1.28
27	31,300	0.92	35,400	1.05	39,600	1.17	43,700	1.29
28	32,800	0.93	37,100	1.06	41,500	1.18	45,800	1.30
29	34,400	0.94	38,900	1.06	43,400	1.19	47,800	1.31
30	35,900	0.95	40,600	1.07	45,300	1.20	49,900	1.32
31	37,500	0.96	42,300	1.08	47,200	1.20	52,000	1.33
32	39,000	0.96	44,100	1.09	49,100	1.21	54,100	1.34
33	40,600	0.97	45,800	1.09	51,000	1.22	56,200	1.34
34	42,100	0.98	47,500	1.10	52,800	1.22	58,200	1.35
35	43,700	0.98	49,200	1.11	54,800	1.23	60,300	1.36
36	45,300	0.99	51,000	1.11	56,700	1.24	62,400	1.36

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

3½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
9	.....	.....	9,750	0.94	10,790	1.04	11,830	1.15
10	10,710	0.92	11,920	1.03	13,120	1.13	14,330	1.24
11	12,870	0.99	14,140	1.10	15,500	1.21	16,900	1.32
12	14,850	1.05	16,400	1.16	17,900	1.27	19,500	1.40
13	17,000	1.10	18,700	1.21	20,400	1.33	22,100	1.44
14	19,100	1.14	21,000	1.26	22,900	1.37	24,800	1.49
15	21,300	1.18	23,300	1.30	25,400	1.41	27,400	1.53
16	23,400	1.21	25,700	1.33	27,900	1.45	30,100	1.56
17	25,600	1.24	28,000	1.36	30,400	1.48	32,800	1.60
18	27,800	1.27	30,400	1.39	33,000	1.50	35,500	1.62
19	30,000	1.29	32,800	1.41	35,500	1.53	38,300	1.65
20	32,200	1.31	35,200	1.43	38,100	1.55	41,000	1.67
21	34,500	1.33	37,600	1.45	40,600	1.57	43,700	1.69
22	36,700	1.35	39,900	1.47	43,200	1.59	46,500	1.71
23	38,900	1.36	42,300	1.48	45,800	1.61	49,200	1.73
24	41,100	1.38	44,700	1.50	48,400	1.62	52,000	1.74
25	43,400	1.39	47,200	1.51	50,900	1.64	54,700	1.76
26	45,600	1.40	49,600	1.53	53,500	1.65	57,500	1.77
27	47,800	1.41	52,000	1.54	56,100	1.66	60,200	1.78
28	50,100	1.42	54,400	1.55	58,700	1.67	63,000	1.79
29	52,300	1.43	56,800	1.56	61,300	1.68	65,800	1.80
30	54,600	1.44	59,200	1.57	63,900	1.69	68,600	1.81
31	56,800	1.45	61,700	1.58	66,500	1.70	71,300	1.82
32	59,100	1.46	64,100	1.58	69,100	1.71	74,100	1.83
33	61,300	1.47	66,500	1.59	71,700	1.72	76,900	1.84
34	63,600	1.47	68,900	1.60	74,300	1.72	79,600	1.85
35	65,800	1.48	71,400	1.61	76,900	1.73	82,400	1.86
36	68,100	1.49	73,800	1.61	79,500	1.74	85,200	1.86

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

4-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
12	.....	.....	.....	.....	11,900	0.84	13,600	0.97
13	.....	.....	12,000	0.78	13,900	0.90	15,800	1.03
14	11,800	0.70	13,900	0.83	15,900	0.96	18,000	1.09
15	13,400	0.74	15,700	0.87	18,000	1.00	20,200	1.13
16	15,100	0.78	17,600	0.91	20,000	1.04	22,500	1.17
17	16,800	0.81	19,400	0.95	22,100	1.08	24,800	1.21
18	18,500	0.84	21,300	0.98	24,200	1.11	27,000	1.24
19	20,200	0.87	23,200	1.01	26,300	1.14	29,300	1.27
20	21,900	0.89	25,100	1.03	28,400	1.16	31,600	1.30
21	23,600	0.92	27,100	1.05	30,500	1.19	34,000	1.32
22	25,300	0.94	29,000	1.07	32,600	1.21	36,300	1.35
23	27,100	0.95	30,900	1.09	34,800	1.23	38,600	1.37
24	28,800	0.97	32,900	1.11	36,900	1.25	41,000	1.38
25	30,600	0.99	34,800	1.12	39,000	1.26	43,300	1.40
26	32,300	1.00	36,700	1.14	41,200	1.28	45,600	1.42
27	34,100	1.01	38,700	1.15	43,300	1.29	48,000	1.43
28	35,800	1.03	40,700	1.16	45,500	1.30	50,300	1.44
29	37,600	1.04	42,600	1.18	47,600	1.32	52,700	1.45
30	39,300	1.05	44,600	1.19	49,800	1.33	55,000	1.47
31	41,100	1.06	46,500	1.20	52,000	1.34	57,400	1.48
32	42,900	1.07	48,500	1.21	54,100	1.35	59,800	1.49
33	44,600	1.07	50,500	1.21	56,300	1.36	62,100	1.50
34	46,400	1.08	52,400	1.22	58,500	1.36	64,500	1.51
35	48,200	1.09	54,400	1.23	60,700	1.37	66,900	1.51
36	50,000	1.10	56,400	1.24	62,800	1.38	69,200	1.52
37	51,700	1.10	58,400	1.25	65,000	1.39	71,600	1.53
38	53,500	1.11	60,400	1.25	67,200	1.39	74,000	1.54
39	55,300	1.12	62,300	1.26	69,400	1.40	76,400	1.54
40	57,100	1.12	64,300	1.26	71,500	1.41	78,800	1.55
41	58,800	1.13	66,300	1.27	73,700	1.41	81,100	1.56
42	60,600	1.13	68,300	1.28	75,900	1.42	83,500	1.56

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

4-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
10	.....	.....	.....	.....	13,340	1.16	14,650	1.28
11	13,000	1.01	14,500	1.14	16,000	1.26	17,500	1.38
12	15,300	1.09	17,000	1.22	18,700	1.34	20,400	1.47
13	17,700	1.16	19,600	1.28	21,400	1.41	23,300	1.54
14	20,100	1.21	22,200	1.34	24,200	1.47	26,300	1.60
15	22,500	1.26	24,800	1.39	27,100	1.52	29,300	1.65
16	25,000	1.31	27,400	1.44	29,900	1.57	32,400	1.70
17	27,400	1.34	30,100	1.48	32,700	1.61	35,400	1.74
18	29,900	1.38	32,800	1.51	35,600	1.64	38,500	1.78
19	32,400	1.41	35,400	1.54	38,500	1.68	41,600	1.81
20	34,900	1.43	38,200	1.57	41,400	1.70	44,700	1.84
21	37,400	1.46	40,900	1.60	44,300	1.73	47,800	1.87
22	39,900	1.48	43,600	1.62	47,200	1.75	50,900	1.89
23	42,500	1.50	46,300	1.64	50,200	1.78	54,000	1.91
24	45,000	1.52	49,000	1.66	53,100	1.80	57,100	1.93
25	47,500	1.54	51,800	1.68	56,000	1.81	60,300	1.95
26	50,000	1.55	54,500	1.69	58,900	1.83	63,400	1.97
27	52,600	1.57	57,300	1.71	61,900	1.85	66,500	1.98
28	55,200	1.58	60,000	1.72	64,900	1.86	69,700	2.00
29	57,700	1.59	62,800	1.73	67,800	1.87	72,800	2.01
30	60,200	1.61	65,500	1.75	70,700	1.89	76,000	2.03
31	62,800	1.62	68,300	1.76	73,700	1.90	79,100	2.04
32	65,400	1.63	71,000	1.77	76,700	1.91	82,300	2.05
33	68,000	1.64	73,800	1.78	79,600	1.92	85,500	2.06
34	70,500	1.65	76,600	1.79	82,600	1.93	88,600	2.07
35	73,100	1.66	79,400	1.80	85,600	1.94	91,800	2.08
36	75,700	1.66	82,100	1.81	88,500	1.95	95,000	2.09
37	78,300	1.67	85,000	1.81	91,500	1.96	98,100	2.10
38	80,900	1.68	87,700	1.82	94,500	1.96	101,000	2.11
39	83,400	1.69	90,500	1.83	97,600	1.97	105,000	2.11
40	86,000	1.69	93,200	1.84	100,000	1.98	108,000	2.12
41	88,600	1.70	96,000	1.84	103,000	1.98	111,000	2.13
42	91,100	1.71	98,800	1.85	106,000	1.99	114,000	2.13

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

4½-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
13	.....	.....	.....	.....	.....	.....	16,000	1.05
14	.....	.....	.....	.....	16,200	0.98	18,500	1.12
15	.....	.....	16,000	0.89	18,500	1.04	20,900	1.18
16	15,400	0.80	18,000	0.94	20,700	1.09	23,400	1.23
17	17,200	0.84	20,100	0.99	23,000	1.13	25,900	1.28
18	19,100	0.88	22,200	1.03	25,300	1.17	28,500	1.32
19	21,000	0.91	24,300	1.06	27,700	1.21	31,000	1.36
20	22,900	0.94	26,500	1.09	30,000	1.24	33,600	1.39
21	24,800	0.97	28,600	1.12	32,400	1.27	36,200	1.42
22	26,700	1.00	30,700	1.15	34,700	1.30	38,700	1.45
23	28,700	1.02	32,900	1.17	37,100	1.32	41,400	1.47
24	30,600	1.04	35,100	1.19	39,500	1.34	44,000	1.50
25	32,600	1.06	37,200	1.21	41,900	1.37	46,600	1.52
26	34,500	1.08	39,400	1.23	44,300	1.38	49,200	1.54
27	36,500	1.09	41,600	1.25	46,700	1.40	51,800	1.56
28	38,400	1.11	43,800	1.26	49,100	1.42	54,500	1.57
29	40,400	1.12	46,000	1.28	51,500	1.43	57,100	1.59
30	42,400	1.13	48,200	1.29	54,000	1.45	59,700	1.60
31	44,400	1.15	50,400	1.30	56,400	1.46	62,400	1.62
32	46,300	1.16	52,600	1.32	58,800	1.47	65,000	1.63
33	48,300	1.17	54,800	1.33	61,200	1.48	67,700	1.64
34	50,300	1.18	57,000	1.34	63,700	1.50	70,400	1.65
35	52,300	1.19	59,200	1.35	66,100	1.51	73,000	1.66
36	54,300	1.20	61,400	1.36	68,500	1.52	75,700	1.67
37	56,300	1.21	63,600	1.37	71,000	1.52	78,300	1.68
38	58,200	1.22	65,800	1.37	73,400	1.53	81,000	1.69
39	60,200	1.22	68,100	1.38	75,900	1.54	83,700	1.70
40	62,200	1.23	70,300	1.39	78,300	1.55	86,300	1.71
41	64,300	1.24	72,500	1.40	80,800	1.56	89,000	1.72
42	66,200	1.24	74,700	1.40	83,300	1.56	91,600	1.72

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

4½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
11	.....	.....	.....	.....	16,200	1.28	17,800	1.41
12	15,500	1.11	17,300	1.24	19,100	1.38	20,900	1.52
13	18,100	1.19	20,100	1.33	22,100	1.47	24,200	1.61
14	20,700	1.26	23,000	1.40	25,200	1.55	27,400	1.69
15	23,400	1.32	25,900	1.47	28,300	1.61	30,800	1.76
16	26,100	1.38	28,800	1.52	31,500	1.67	34,100	1.81
17	28,800	1.43	31,700	1.57	34,600	1.72	37,500	1.87
18	31,600	1.47	34,700	1.62	37,800	1.76	41,000	1.91
19	34,400	1.51	37,700	1.66	41,000	1.80	44,400	1.95
20	37,200	1.54	40,700	1.69	44,300	1.84	47,800	1.99
21	39,900	1.57	43,700	1.72	47,500	1.87	51,300	2.03
22	42,800	1.60	46,800	1.75	50,800	1.90	54,800	2.06
23	45,600	1.63	49,800	1.78	54,000	1.93	58,300	2.08
24	48,400	1.65	52,900	1.80	57,300	1.96	61,800	2.11
25	51,200	1.67	55,900	1.83	60,600	1.98	65,300	2.13
26	54,100	1.69	59,000	1.85	63,900	2.00	68,800	2.15
27	57,000	1.71	62,100	1.87	67,200	2.02	72,300	2.18
28	59,800	1.73	65,100	1.88	70,500	2.04	75,800	2.19
29	62,700	1.74	68,200	1.90	73,800	2.06	79,400	2.21
30	65,500	1.76	71,300	1.92	77,100	2.07	82,900	2.23
31	68,400	1.77	74,400	1.93	80,400	2.09	86,400	2.24
32	71,300	1.79	77,500	1.94	83,700	2.10	90,000	2.26
33	74,200	1.80	80,600	1.96	87,100	2.11	93,500	2.27
34	77,000	1.81	83,700	1.97	90,400	2.13	97,100	2.28
35	79,900	1.82	86,800	1.98	93,700	2.14	101,000	2.30
36	82,800	1.83	89,900	1.99	97,000	2.15	104,000	2.31
37	85,700	1.84	93,000	2.00	100,000	2.16	108,000	2.32
38	88,500	1.85	96,100	2.01	104,000	2.17	111,000	2.33
39	91,500	1.86	99,300	2.02	107,000	2.18	115,000	2.34
40	94,300	1.87	102,000	2.03	110,000	2.19	118,000	2.35
41	97,300	1.88	106,000	2.04	114,000	2.20	122,000	2.36
42	100,000	1.88	109,000	2.04	117,000	2.20	126,000	2.36

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

5-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
14	.....	.....	.....	.....	.....	.....	18,600	1.13
15	.....	.....	.....	.....	18,700	1.05	21,300	1.21
16	.....	.....	18,200	0.96	21,100	1.12	24,000	1.27
17	17,400	0.85	20,500	1.01	23,600	1.17	26,800	1.33
18	19,400	0.90	22,800	1.06	26,200	1.22	29,500	1.38
19	21,500	0.94	25,100	1.10	28,700	1.26	32,300	1.43
20	23,600	0.98	27,400	1.14	31,300	1.30	35,100	1.47
21	25,700	1.01	29,800	1.18	33,900	1.34	38,000	1.51
22	27,800	1.04	32,100	1.21	36,500	1.37	40,800	1.54
23	30,000	1.07	34,500	1.24	39,100	1.40	43,600	1.57
24	32,000	1.09	36,900	1.26	41,700	1.43	46,500	1.60
25	34,200	1.12	39,300	1.29	44,400	1.46	49,400	1.63
26	36,300	1.14	41,700	1.31	47,000	1.48	52,300	1.65
27	38,500	1.16	44,100	1.33	49,700	1.50	55,200	1.67
28	40,700	1.18	46,500	1.35	52,300	1.52	58,200	1.69
29	42,800	1.20	48,900	1.37	55,000	1.54	61,100	1.71
30	45,000	1.21	51,300	1.39	57,700	1.56	64,000	1.73
31	47,200	1.23	53,800	1.40	60,300	1.57	66,900	1.75
32	49,400	1.24	56,200	1.42	63,000	1.59	69,900	1.76
33	51,600	1.26	58,600	1.43	65,700	1.60	72,800	1.78
34	53,800	1.27	61,100	1.44	68,400	1.62	75,700	1.79
35	56,000	1.28	63,500	1.46	71,100	1.63	78,600	1.80
36	58,200	1.29	66,000	1.47	73,800	1.64	81,600	1.82
37	60,400	1.30	68,400	1.48	76,500	1.65	84,500	1.83
38	62,600	1.31	70,900	1.49	79,200	1.66	87,500	1.84
39	64,800	1.32	73,300	1.50	81,900	1.67	90,400	1.85
40	67,000	1.33	75,800	1.51	84,600	1.68	93,400	1.86
41	69,200	1.34	78,300	1.52	87,300	1.69	96,400	1.87
42	71,400	1.35	80,700	1.52	90,000	1.70	99,300	1.88
43	73,700	1.36	83,200	1.53	92,700	1.71	102,000	1.89
44	75,800	1.36	85,600	1.54	95,400	1.72	105,000	1.89
45	78,100	1.37	88,100	1.55	98,200	1.73	108,000	1.90
46	80,300	1.38	90,600	1.56	101,000	1.73	111,000	1.91
47	82,500	1.39	93,100	1.56	104,000	1.74	114,000	1.92
48	84,800	1.39	95,500	1.57	106,000	1.75	117,000	1.92

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)
$f_s = 16{,}000$ $n = 15$

5-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
12	.....	.....	.....	.....	.....	.....	21,100	1.54
13	.....	.....	20,300	1.35	22,500	1.50	24,600	1.65
14	21,000	1.29	23,400	1.44	25,800	1.60	28,200	1.75
15	23,900	1.36	26,600	1.52	29,200	1.68	31,800	1.83
16	26,900	1.43	29,800	1.59	32,600	1.75	35,500	1.91
17	29,900	1.49	33,000	1.65	36,100	1.81	39,200	1.97
18	32,900	1.54	36,300	1.70	39,600	1.87	43,000	2.03
19	35,900	1.59	39,500	1.75	43,200	1.92	46,800	2.08
20	39,000	1.63	42,800	1.80	46,700	1.96	50,600	2.12
21	42,100	1.67	46,200	1.84	50,300	2.00	54,400	2.17
22	45,200	1.71	49,500	1.87	53,900	2.04	58,200	2.20
23	48,300	1.74	52,900	1.90	57,500	2.07	62,000	2.24
24	51,400	1.77	56,200	1.93	61,100	2.10	65,900	2.27
25	54,500	1.79	59,600	1.96	64,700	2.13	69,800	2.30
26	57,700	1.82	63,000	1.99	68,300	2.16	73,700	2.33
27	60,800	1.84	66,400	2.01	72,000	2.18	77,600	2.35
28	64,000	1.86	69,800	2.03	75,600	2.20	81,400	2.38
29	67,100	1.88	73,200	2.05	79,300	2.23	85,300	2.40
30	70,300	1.90	76,600	2.07	83,000	2.24	89,300	2.42
31	73,500	1.92	80,000	2.09	86,600	2.26	93,200	2.44
32	76,700	1.93	83,500	2.11	90,300	2.28	97,100	2.45
33	79,800	1.95	86,900	2.12	94,000	2.30	101,000	2.47
34	83,000	1.96	90,400	2.14	97,700	2.31	105,000	2.49
35	86,200	1.98	93,800	2.15	101,000	2.33	109,000	2.50
36	89,400	1.99	97,200	2.17	105,000	2.34	113,000	2.51
37	92,600	2.00	101,000	2.18	109,000	2.35	117,000	2.53
38	95,800	2.01	104,000	2.19	112,000	2.36	121,000	2.54
39	99,000	2.02	108,000	2.20	116,000	2.38	125,000	2.55
40	102,000	2.04	111,000	2.21	120,000	2.39	129,000	2.56
41	105,000	2.05	114,000	2.22	124,000	2.40	133,000	2.57
42	109,000	2.05	118,000	2.23	127,000	2.41	136,000	2.58
43	112,000	2.06	121,000	2.24	131,000	2.42	140,000	2.59
44	115,000	2.07	125,000	2.25	135,000	2.42	144,000	2.60
45	118,000	2.08	128,000	2.26	138,000	2.43	148,000	2.61
46	121,000	2.09	132,000	2.26	142,000	2.44	152,000	2.62
47	125,000	2.10	135,000	2.27	146,000	2.45	156,000	2.63
48	128,000	2.10	139,000	2.28	150,000	2.46	160,000	2.63

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

5½-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
16	.....	.....	.....	.....	.....	.....	24,300	1.29
17	.....	.....	.....	.....	23,900	1.19	27,300	1.36
18	.....	.....	23,100	1.08	26,700	1.25	30,300	1.42
19	21,700	0.95	25,600	1.13	29,400	1.30	33,200	1.48
20	24,000	1.00	28,100	1.17	32,200	1.35	36,300	1.53
21	26,200	1.04	30,600	1.22	35,000	1.40	39,400	1.57
22	28,500	1.07	33,200	1.25	37,900	1.44	42,500	1.62
23	30,800	1.11	35,800	1.29	40,700	1.47	45,700	1.65
24	33,200	1.14	38,400	1.32	43,600	1.50	48,800	1.69
25	35,500	1.17	41,000	1.35	46,400	1.54	51,900	1.72
26	37,800	1.19	43,600	1.38	49,300	1.56	55,100	1.75
27	40,200	1.22	46,200	1.40	52,200	1.59	58,200	1.77
28	42,600	1.24	48,800	1.43	55,100	1.61	61,400	1.80
29	44,900	1.26	51,500	1.45	58,100	1.64	64,600	1.82
30	47,300	1.28	54,100	1.47	61,000	1.66	67,800	1.84
31	49,700	1.30	56,800	1.49	63,900	1.68	71,000	1.86
32	52,100	1.32	59,500	1.51	66,800	1.70	74,200	1.88
33	54,500	1.33	62,100	1.52	69,800	1.71	77,400	1.90
34	56,900	1.35	64,800	1.54	72,700	1.73	80,600	1.92
35	59,300	1.36	67,500	1.55	75,700	1.74	83,800	1.93
36	61,700	1.38	70,200	1.57	78,600	1.76	87,100	1.95
37	64,100	1.39	72,900	1.58	81,600	1.77	90,300	1.96
38	66,500	1.40	75,500	1.59	84,500	1.79	93,500	1.98
39	68,900	1.41	78,200	1.61	87,500	1.80	96,800	1.99
40	71,400	1.42	80,900	1.62	90,500	1.81	100,000	2.00
41	73,800	1.44	83,600	1.63	93,400	1.82	103,000	2.01
42	76,200	1.45	86,300	1.64	96,400	1.83	106,000	2.02
43	78,600	1.46	89,000	1.65	99,400	1.84	110,000	2.04
44	81,100	1.47	91,700	1.66	102,000	1.85	113,000	2.05
45	83,500	1.47	94,400	1.67	105,000	1.86	116,000	2.05
46	85,900	1.48	97,100	1.68	108,000	1.87	120,000	2.06
47	88,300	1.49	100,000	1.68	111,000	1.88	123,000	2.07
48	90,800	1.50	103,000	1.69	114,000	1.89	126,000	2.08

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

5½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
13	.....	.....	.....	.....	.....	.....	24,800	1.67
14	.....	.....	23,600	1.46	26,100	1.62	28,700	1.79
15	24,200	1.38	27,000	1.55	29,800	1.72	32,600	1.89
16	27,400	1.46	30,400	1.64	33,500	1.81	36,500	1.98
17	30,600	1.54	33,900	1.71	37,200	1.88	40,600	2.05
18	33,800	1.60	37,400	1.77	41,100	1.95	44,600	2.12
19	37,100	1.65	41,000	1.83	44,900	2.01	48,700	2.19
20	40,500	1.71	44,600	1.89	48,700	2.06	52,800	2.24
21	43,800	1.75	48,200	1.93	52,600	2.11	57,000	2.29
22	47,200	1.80	51,800	1.98	56,500	2.16	61,200	2.34
23	50,600	1.83	55,400	2.02	60,400	2.20	65,400	2.38
24	54,000	1.87	59,200	2.05	64,400	2.24	69,600	2.42
25	57,400	1.90	62,900	2.09	68,300	2.27	73,800	2.45
26	60,800	1.93	66,600	2.12	72,300	2.30	78,000	2.49
27	64,300	1.96	70,300	2.15	76,300	2.33	82,300	2.52
28	67,700	1.99	74,000	2.17	80,300	2.36	86,600	2.54
29	71,200	2.01	77,700	2.20	84,300	2.38	90,900	2.57
30	74,600	2.03	81,500	2.22	88,300	2.41	95,100	2.59
31	78,100	2.05	85,200	2.24	92,300	2.43	99,400	2.62
32	81,600	2.07	89,000	2.26	96,300	2.45	104,000	2.64
33	85,100	2.09	92,700	2.28	100,000	2.47	108,000	2.66
34	88,600	2.11	96,500	2.30	104,000	2.49	112,000	2.68
35	92,000	2.12	100,000	2.31	108,000	2.50	117,000	2.70
36	95,600	2.14	104,000	2.33	112,000	2.52	121,000	2.71
37	99,100	2.16	108,000	2.35	117,000	2.54	125,000	2.73
38	103,000	2.17	112,000	2.36	121,000	2.55	130,000	2.74
39	106,000	2.18	115,000	2.37	125,000	2.57	134,000	2.76
40	110,000	2.19	119,000	2.39	129,000	2.58	138,000	2.77
41	113,000	2.21	123,000	2.40	133,000	2.59	143,000	2.78
42	117,000	2.22	127,000	2.41	137,000	2.60	147,000	2.79
43	120,000	2.23	131,000	2.42	141,000	2.61	151,000	2.81
44	124,000	2.24	134,000	2.43	145,000	2.63	156,000	2.82
45	127,000	2.25	138,000	2.44	149,000	2.64	160,000	2.83
46	131,000	2.26	142,000	2.45	153,000	2.65	164,000	2.84
47	134,000	2.27	146,000	2.46	157,000	2.65	169,000	2.85
48	138,000	2.28	150,000	2.47	161,000	2.66	173,000	2.86

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

6-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
17	.....	.....	.....	.....	.....	.....	27,500	1.38
18	.....	.....	.....	.....	26,900	1.26	30,700	1.45
19	.....	.....	25,700	1.14	29,800	1.33	33,900	1.52
20	.....	.....	28,400	1.19	32,800	1.38	37,200	1.58
21	26,500	1.05	31,200	1.24	35,800	1.44	40,500	1.63
22	29,000	1.09	33,900	1.29	38,900	1.48	43,900	1.68
23	31,400	1.13	36,700	1.33	42,000	1.53	47,200	1.72
24	33,900	1.17	39,500	1.37	45,000	1.57	50,600	1.76
25	36,500	1.21	42,300	1.40	48,200	1.60	54,000	1.80
26	39,100	1.24	45,100	1.44	51,300	1.64	57,400	1.83
27	41,500	1.27	48,000	1.47	54,400	1.67	60,800	1.87
28	44,100	1.29	50,800	1.49	57,600	1.70	64,300	1.90
29	46,700	1.31	53,700	1.52	60,700	1.72	67,700	1.92
30	49,200	1.34	56,600	1.55	63,900	1.75	71,200	1.95
31	51,800	1.36	59,400	1.57	67,000	1.77	74,700	1.97
32	54,400	1.38	62,300	1.59	70,200	1.79	78,100	2.00
33	57,000	1.40	65,200	1.61	73,400	1.81	81,600	2.02
34	59,600	1.42	68,100	1.63	76,600	1.83	85,100	2.04
35	62,200	1.44	71,000	1.65	79,800	1.85	88,600	2.06
36	64,800	1.46	73,900	1.66	83,000	1.87	92,100	2.08
37	67,500	1.47	76,900	1.68	86,300	1.89	95,700	2.09
38	70,100	1.49	79,800	1.69	89,500	1.90	99,200	2.11
39	72,700	1.50	82,700	1.71	92,700	1.92	103,000	2.12
40	75,300	1.51	85,600	1.72	95,900	1.93	106,000	2.14
41	78,000	1.53	88,500	1.73	99,500	1.94	110,000	2.15
42	80,600	1.54	91,500	1.75	102,000	1.96	113,000	2.16
43	83,200	1.55	94,400	1.76	106,000	1.97	117,000	2.18
44	85,900	1.56	97,400	1.77	109,000	1.98	120,000	2.19
45	88,500	1.57	100,000	1.78	112,000	1.99	124,000	2.20
46	91,200	1.58	103,000	1.79	115,000	2.00	127,000	2.21
47	93,800	1.59	106,000	1.80	119,000	2.01	131,000	2.22
48	96,500	1.60	109,000	1.81	122,000	2.02	134,000	2.23
49	99,200	1.61	112,000	1.82	125,000	2.03	138,000	2.24
50	102,000	1.62	115,000	1.83	128,000	2.04	142,000	2.25
51	104,000	1.62	118,000	1.83	131,000	2.05	145,000	2.26
52	107,000	1.63	121,000	1.84	135,000	2.06	149,000	2.27
53	110,000	1.64	124,000	1.85	138,000	2.06	152,000	2.28
54	112,000	1.65	127,000	1.86	141,000	2.07	156,000	2.28

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

6-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
14	.....	.....	.....	.....	.....	.....	28,800	1.80
15	.....	.....	.....	.....	30,100	1.74	33,000	1.92
16	27,500	1.48	30,800	1.66	34,000	1.84	37,200	2.03
17	31,000	1.56	34,500	1.75	38,000	1.93	41,500	2.12
18	34,500	1.64	38,300	1.82	42,100	2.01	45,900	2.20
19	38,000	1.71	42,100	1.89	46,200	2.08	50,300	2.27
20	41,600	1.77	46,000	1.96	50,300	2.15	54,700	2.34
21	45,200	1.82	49,900	2.01	54,500	2.21	59,200	2.40
22	48,800	1.87	53,800	2.07	58,700	2.26	63,700	2.45
23	52,500	1.92	57,700	2.11	63,000	2.31	68,200	2.50
24	56,200	1.96	61,700	2.16	67,300	2.35	72,800	2.55
25	59,800	2.00	65,700	2.20	71,500	2.39	77,400	2.59
26	63,600	2.03	69,700	2.23	75,800	2.43	82,000	2.63
27	67,300	2.07	73,700	2.27	80,100	2.47	86,600	2.67
28	71,000	2.10	77,800	2.30	84,500	2.50	91,200	2.70
29	74,800	2.13	81,800	2.33	88,800	2.53	95,800	2.73
30	78,500	2.15	85,800	2.36	93,200	2.56	100,000	2.76
31	82,300	2.18	89,900	2.38	97,500	2.58	105,000	2.79
32	86,100	2.20	94,000	2.40	102,000	2.61	110,000	2.81
33	89,800	2.22	98,100	2.43	106,000	2.63	114,000	2.84
34	93,600	2.24	102,000	2.45	111,000	2.65	119,000	2.86
35	97,400	2.26	106,000	2.47	115,000	2.67	124,000	2.88
36	101,000	2.28	110,000	2.49	119,000	2.69	129,000	2.90
37	105,000	2.30	114,000	2.51	124,000	2.71	133,000	2.92
38	109,000	2.32	119,000	2.52	128,000	2.73	138,000	2.94
39	113,000	2.33	123,000	2.54	133,000	2.75	143,000	2.95
40	116,000	2.35	127,000	2.55	137,000	2.76	147,000	2.97
41	120,000	2.36	131,000	2.57	141,000	2.78	152,000	2.98
42	124,000	2.37	135,000	2.58	146,000	2.79	157,000	3.00
43	128,000	2.39	139,000	2.59	150,000	2.80	161,000	3.01
44	132,000	2.40	143,000	2.61	155,000	2.82	166,000	3.03
45	135,000	2.41	147,000	2.62	159,000	2.83	171,000	3.04
46	139,000	2.42	152,000	2.63	164,000	2.84	176,000	3.05
47	143,000	2.43	156,000	2.64	168,000	2.85	181,000	3.06
48	147,000	2.44	160,000	2.65	173,000	2.86	185,000	3.07
49	151,000	2.45	164,000	2.66	177,000	2.88	190,000	3.09
50	155,000	2.46	168,000	2.67	181,000	2.88	195,000	3.10
51	159,000	2.47	172,000	2.68	186,000	2.89	199,000	3.11
52	163,000	2.48	176,000	2.69	190,000	2.90	204,000	3.12
53	166,000	2.49	181,000	2.70	195,000	2.91	209,000	3.12
54	170,000	2.50	185,000	2.71	199,000	2.92	214,000	3.13

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

6½-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
19	.....	.....	.....	.....	.....	.....	34,200	1.54
20	.....	.....	.....	.....	33,100	1.40	37,700	1.60
21	.....	.....	31,400	1.26	36,400	1.46	41,300	1.67
22	29,100	1.10	34,400	1.31	39,600	1.52	44,900	1.72
23	31,800	1.15	37,300	1.36	42,900	1.57	48,500	1.78
24	34,400	1.19	40,300	1.40	46,200	1.61	52,100	1.82
25	37,100	1.23	43,300	1.44	49,500	1.66	55,700	1.87
26	39,800	1.27	46,400	1.48	52,900	1.70	59,400	1.91
27	42,600	1.30	49,400	1.52	56,200	1.73	63,100	1.95
28	45,300	1.34	52,500	1.55	59,600	1.77	66,800	1.98
29	48,100	1.37	55,500	1.58	63,000	1.80	70,500	2.01
30	50,800	1.39	58,600	1.61	66,400	1.83	74,200	2.05
31	53,600	1.42	61,700	1.64	69,800	1.86	77,900	2.07
32	56,400	1.44	64,800	1.66	73,300	1.88	81,700	2.10
33	59,200	1.47	67,900	1.68	76,700	1.90	85,400	2.12
34	62,000	1.49	71,100	1.71	80,100	1.93	89,200	2.15
35	64,800	1.51	74,200	1.73	83,600	1.95	93,000	2.17
36	67,600	1.53	77,300	1.75	87,100	1.97	96,800	2.19
37	70,400	1.54	80,500	1.77	90,500	1.99	100,000	2.21
38	73,300	1.56	83,600	1.78	94,000	2.01	104,000	2.23
39	76,100	1.58	86,800	1.80	97,500	2.02	108,000	2.25
40	78,900	1.59	89,900	1.82	101,000	2.04	112,000	2.27
41	81,800	1.61	93,100	1.83	104,000	2.06	116,000	2.28
42	84,600	1.62	96,300	1.85	108,000	2.07	120,000	2.30
43	87,500	1.64	99,400	1.86	111,000	2.09	123,000	2.31
44	90,300	1.65	103,000	1.87	115,000	2.10	127,000	2.32
45	93,100	1.66	106,000	1.89	118,000	2.11	131,000	2.34
46	96,000	1.67	109,000	1.90	122,000	2.12	135,000	2.35
47	98,900	1.68	112,000	1.91	125,000	2.14	139,000	2.36
48	102,000	1.69	115,000	1.92	129,000	2.15	142,000	2.37
49	105,000	1.70	118,000	1.93	132,000	2.16	146,000	2.39
50	107,000	1.71	122,000	1.94	136,000	2.17	150,000	2.40
51	110,000	1.72	125,000	1.95	139,000	2.18	154,000	2.41
52	113,000	1.73	128,000	1.96	143,000	2.19	158,000	2.42
53	116,000	1.74	131,000	1.97	146,000	2.20	162,000	2.43
54	119,000	1.75	135,000	1.98	150,000	2.21	166,000	2.44

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

6½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
16	.....	.....	.....	.....	34,200	1.86	37,500	2.05
17	.....	.....	34,800	1.77	38,400	1.96	42,100	2.16
18	34,800	1.66	38,800	1.86	42,800	2.06	46,800	2.26
19	38,600	1.74	42,900	1.94	47,200	2.14	51,500	2.34
20	42,400	1.81	47,000	2.01	51,600	2.22	56,200	2.42
21	46,200	1.87	51,200	2.08	56,100	2.29	61,000	2.49
22	50,100	1.93	55,400	2.14	60,600	2.35	65,800	2.56
23	54,000	1.99	59,600	2.20	65,100	2.40	70,700	2.61
24	58,000	2.04	63,800	2.25	69,700	2.46	75,600	2.67
25	61,900	2.08	68,100	2.29	74,300	2.51	80,500	2.72
26	65,900	2.12	72,400	2.34	78,900	2.55	85,400	2.76
27	69,900	2.16	76,700	2.37	83,600	2.59	90,400	2.80
28	73,900	2.20	81,100	2.41	88,200	2.63	95,400	2.84
29	77,900	2.23	85,400	2.45	92,900	2.66	100,000	2.88
30	82,000	2.26	89,800	2.48	97,600	2.70	105,000	2.91
31	86,100	2.29	94,200	2.51	102,000	2.73	110,000	2.95
32	90,100	2.32	98,500	2.54	107,000	2.76	115,000	2.98
33	94,200	2.34	103,000	2.56	112,000	2.78	120,000	3.00
34	98,300	2.37	107,000	2.59	116,000	2.81	125,000	3.03
35	102,000	2.39	112,000	2.61	121,000	2.83	131,000	3.05
36	106,000	2.41	116,000	2.64	126,000	2.86	136,000	3.08
37	111,000	2.43	121,000	2.66	131,000	2.88	141,000	3.10
38	115,000	2.45	125,000	2.68	135,000	2.90	146,000	3.12
39	119,000	2.47	130,000	2.70	140,000	2.92	151,000	3.14
40	123,000	2.49	134,000	2.71	145,000	2.94	156,000	3.16
41	127,000	2.50	138,000	2.73	150,000	2.95	161,000	3.18
42	131,000	2.52	143,000	2.75	155,000	2.97	166,000	3.20
43	135,000	2.54	147,000	2.76	159,000	2.99	171,000	3.21
44	139,000	2.55	152,000	2.78	164,000	3.00	176,000	3.23
45	144,000	2.56	156,000	2.79	169,000	3.02	181,000	3.24
46	148,000	2.58	161,000	2.80	174,000	3.03	187,000	3.26
47	152,000	2.59	165,000	2.82	178,000	3.04	192,000	3.27
48	156,000	2.60	170,000	2.83	183,000	3.06	197,000	3.28
49	160,000	2.61	174,000	2.84	188,000	3.07	202,000	3.30
50	164,000	2.63	179,000	2.85	193,000	3.08	207,000	3.31
51	169,000	2.64	183,000	2.86	198,000	3.09	212,000	3.32
52	173,000	2.65	188,000	2.87	202,000	3.10	217,000	3.33
53	177,000	2.66	192,000	2.88	207,000	3.11	222,000	3.34
54	181,000	2.67	197,000	2.89	212,000	3.12	228,000	3.35

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

7-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
20	.....	.....	.....	.....	.....	.....	38,000	1.62
21	.....	.....	.....	.....	36,600	1.47	41,700	1.69
22	.....	.....	34,600	1.32	40,000	1.54	45,500	1.76
23	.....	.....	37,700	1.37	43,500	1.60	49,400	1.82
24	34,600	1.20	40,800	1.43	47,000	1.65	53,200	1.87
25	37,500	1.25	44,000	1.47	50,600	1.70	57,100	1.93
26	40,400	1.29	47,300	1.52	54,100	1.75	61,000	1.97
27	43,300	1.33	50,500	1.56	57,700	1.79	64,900	2.02
28	46,200	1.37	53,800	1.60	61,300	1.83	68,900	2.06
29	49,100	1.40	57,000	1.63	64,900	1.86	72,900	2.09
30	52,100	1.43	60,300	1.67	68,600	1.90	76,800	2.13
31	55,100	1.46	63,600	1.70	72,300	1.93	80,800	2.16
32	58,000	1.49	67,000	1.73	75,900	1.96	84,800	2.19
33	61,000	1.52	70,300	1.75	79,600	1.99	88,800	2.22
34	64,000	1.54	73,600	1.78	83,300	2.01	92,900	2.25
35	67,000	1.57	77,000	1.80	86,900	2.04	97,000	2.28
36	70,000	1.59	80,300	1.83	91,600	2.06	101,000	2.30
37	73,100	1.61	83,700	1.85	94,400	2.08	105,000	2.32
38	76,100	1.63	87,100	1.87	98,100	2.11	109,000	2.34
39	79,100	1.65	90,500	1.89	102,000	2.13	113,000	2.36
40	82,200	1.67	93,800	1.91	106,000	2.14	117,000	2.38
41	85,200	1.68	97,200	1.92	109,000	2.16	121,000	2.40
42	88,300	1.70	101,000	1.94	113,000	2.18	125,000	2.42
43	91,300	1.71	104,000	1.96	117,000	2.20	129,000	2.44
44	94,400	1.73	107,000	1.97	121,000	2.21	134,000	2.45
45	97,400	1.74	111,000	1.99	124,000	2.23	138,000	2.47
46	100,000	1.76	114,000	2.00	128,000	2.24	142,000	2.48
47	104,000	1.77	118,000	2.01	132,000	2.25	146,000	2.50
48	107,000	1.78	121,000	2.03	136,000	2.27	150,000	2.51
49	110,000	1.79	125,000	2.04	139,000	2.28	154,000	2.53
50	113,000	1.81	128,000	2.05	143,000	2.29	158,000	2.54
51	116,000	1.82	131,000	2.06	147,000	2.31	162,000	2.55
52	119,000	1.83	135,000	2.07	151,000	2.32	167,000	2.56
53	122,000	1.84	138,000	2.08	154,000	2.33	171,000	2.57
54	125,000	1.85	142,000	2.09	158,000	2.34	175,000	2.58
55	128,000	1.86	145,000	2.10	162,000	2.35	179,000	2.59
56	131,000	1.86	149,000	2.11	166,000	2.36	183,000	2.60
57	134,000	1.87	152,000	2.12	170,000	2.37	187,000	2.61
58	138,000	1.88	155,000	2.13	173,000	2.38	191,000	2.62
59	141,000	1.89	159,000	2.14	177,000	2.38	196,000	2.63
60	144,000	1.90	162,000	2.15	181,000	2.39	200,000	2.64

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

7-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
17	.....	.....	.....	.....	38,600	1.97	42,400	2.18
18	.....	.....	39,000	1.87	43,200	2.08	47,300	2.29
19	38,800	1.75	43,300	1.97	47,800	2.18	52,300	2.39
20	42,800	1.84	47,700	2.05	52,500	2.27	57,300	2.48
21	46,900	1.91	52,100	2.13	57,300	2.35	62,400	2.57
22	51,000	1.98	56,500	2.20	62,100	2.42	67,600	2.64
23	55,200	2.04	61,100	2.26	66,900	2.49	72,700	2.71
24	59,400	2.10	65,600	2.32	71,800	2.55	78,000	2.79
25	63,600	2.15	70,200	2.38	76,700	2.60	83,200	2.83
26	67,900	2.20	74,700	2.43	81,600	2.65	88,500	2.88
27	72,100	2.24	79,400	2.47	86,600	2.70	93,800	2.93
28	76,400	2.29	84,000	2.52	91,500	2.75	99,100	2.97
29	80,700	2.32	88,600	2.56	96,500	2.79	104,000	3.02
30	85,100	2.36	93,300	2.59	102,000	2.82	110,000	3.06
31	89,400	2.39	98,000	2.63	107,000	2.86	115,000	3.09
32	93,800	2.43	103,000	2.66	112,000	2.89	121,000	3.13
33	98,100	2.46	107,000	2.69	117,000	2.93	126,000	3.16
34	103,000	2.48	112,000	2.72	122,000	2.96	131,000	3.19
35	107,000	2.51	117,000	2.75	127,000	2.98	137,000	3.22
36	111,000	2.54	122,000	2.77	132,000	3.01	142,000	3.25
37	116,000	2.56	126,000	2.79	137,000	3.04	148,000	3.27
38	120,000	2.58	131,000	2.82	142,000	3.06	153,000	3.30
39	124,000	2.60	136,000	2.84	147,000	3.08	159,000	3.32
40	129,000	2.62	141,000	2.86	152,000	3.10	164,000	3.34
41	133,000	2.64	145,000	2.88	157,000	3.12	169,000	3.36
42	138,000	2.66	150,000	2.90	163,000	3.14	175,000	3.38
43	142,000	2.68	155,000	2.92	168,000	3.16	180,000	3.40
44	147,000	2.70	160,000	2.94	173,000	3.18	186,000	3.42
45	151,000	2.71	165,000	2.95	178,000	3.19	191,000	3.44
46	156,000	2.73	169,000	2.97	183,000	3.21	197,000	3.45
47	160,000	2.74	174,000	2.98	188,000	3.23	202,000	3.47
48	164,000	2.76	179,000	3.00	193,000	3.24	208,000	3.48
49	169,000	2.77	184,000	3.01	199,000	3.26	213,000	3.50
50	173,000	2.78	189,000	3.03	204,000	3.27	219,000	3.51
51	178,000	2.79	193,000	3.04	209,000	3.28	224,000	3.53
52	182,000	2.81	198,000	3.05	214,000	3.30	230,000	3.54
53	187,000	2.82	203,000	3.06	219,000	3.31	236,000	3.55
54	191,000	2.83	208,000	3.07	224,000	3.32	241,000	3.56
55	196,000	2.84	213,000	3.09	230,000	3.33	247,000	3.58
56	200,000	2.85	218,000	3.10	235,000	3.34	252,000	3.59
57	205,000	2.86	222,000	3.11	240,000	3.35	258,000	3.60
58	209,000	2.87	227,000	3.12	245,000	3.36	263,000	3.61
59	214,000	2.88	232,000	3.12	250,000	3.37	269,000	3.62
60	218,000	2.89	237,000	3.13	256,000	3.38	274,000	3.63

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

7½-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
21	.....	.....	.....	.....	.....	.....	41,900	1.70
22	.....	.....	.....	.....	.....	.....	45,900	1.78
23	.....	.....	.....	.....	43,800	1.61	49,900	1.85
24	.....	.....	41,100	1.44	47,500	1.67	54,000	1.91
25	.....	.....	44,400	1.49	51,300	1.73	58,100	1.97
26	40,600	1.30	47,800	1.54	55,100	1.78	62,300	2.02
27	43,700	1.35	51,300	1.59	58,900	1.83	66,400	2.07
28	46,800	1.39	54,700	1.63	62,700	1.88	70,600	2.12
29	49,900	1.42	58,200	1.67	66,500	1.92	74,100	2.16
30	53,000	1.46	61,700	1.71	70,400	1.96	79,100	2.20
31	56,200	1.50	65,200	1.75	74,300	1.99	83,300	2.24
32	59,400	1.53	68,800	1.78	78,200	2.03	87,600	2.28
33	62,500	1.56	72,300	1.81	82,100	2.06	91,900	2.31
34	65,700	1.59	75,900	1.84	86,000	2.09	96,100	2.34
35	68,900	1.62	79,400	1.87	89,900	2.12	100,000	2.37
36	72,100	1.64	83,000	1.89	93,900	2.15	105,000	2.40
37	75,300	1.67	86,600	1.92	97,800	2.17	109,000	2.42
38	78,600	1.69	90,200	1.94	102,000	2.20	113,000	2.45
39	81,800	1.71	93,800	1.97	106,000	2.22	118,000	2.47
40	85,000	1.73	97,400	1.99	110,000	2.24	122,000	2.50
41	88,300	1.75	101,000	2.01	114,000	2.26	126,000	2.52
42	91,500	1.77	105,000	2.03	118,000	2.28	131,000	2.54
43	94,800	1.79	108,000	2.04	122,000	2.30	135,000	2.56
44	98,000	1.80	112,000	2.06	126,000	2.32	140,000	2.58
45	101,000	1.82	116,000	2.08	130,000	2.34	144,000	2.59
46	105,000	1.84	119,000	2.09	134,000	2.35	148,000	2.61
47	108,000	1.85	123,000	2.11	138,000	2.37	153,000	2.63
48	111,000	1.87	126,000	2.12	142,000	2.38	157,000	2.64
49	114,000	1.88	130,000	2.14	146,000	2.40	162,000	2.66
50	118,000	1.89	134,000	2.15	150,000	2.41	166,000	2.67
51	121,000	1.90	137,000	2.16	154,000	2.43	170,000	2.69
52	124,000	1.92	141,000	2.18	158,000	2.44	175,000	2.70
53	128,000	1.93	145,000	2.19	162,000	2.45	179,000	2.71
54	131,000	1.94	148,000	2.20	166,000	2.46	184,000	2.72
55	134,000	1.95	152,000	2.21	170,000	2.47	188,000	2.74
56	137,000	1.96	156,000	2.22	174,000	2.48	192,000	2.75
57	141,000	1.97	160,000	2.23	178,000	2.50	197,000	2.76
58	144,000	1.98	163,000	2.24	182,000	2.51	201,000	2.77
59	147,000	1.99	167,000	2.25	186,000	2.52	206,000	2.78
60	151,000	2.00	170,000	2.26	190,000	2.53	210,000	2.79

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

7½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
18	.....	.....	.....	.....	.....	.....	47,500	2.31
19	.....	.....	43,500	1.98	48,100	2.20	52,800	2.43
20	43,100	1.85	48,100	2.07	53,100	2.30	58,100	2.53
21	47,300	1.93	52,700	2.16	58,100	2.39	63,500	2.62
22	51,700	2.01	57,400	2.24	63,200	2.48	68,900	2.71
23	56,100	2.08	62,200	2.32	68,300	2.55	74,400	2.79
24	60,500	2.15	67,000	2.38	73,500	2.62	79,900	2.86
25	65,000	2.21	71,800	2.45	78,700	2.69	85,500	2.93
26	69,500	2.26	76,700	2.50	83,900	2.74	91,100	2.99
27	74,000	2.32	81,600	2.56	89,200	2.80	96,700	3.04
28	78,600	2.36	86,500	2.61	94,400	2.85	102,000	3.09
29	83,100	2.41	91,400	2.65	99,700	2.90	108,000	3.14
30	87,700	2.45	96,400	2.70	105,000	2.94	114,000	3.19
31	92,300	2.48	101,000	2.74	110,000	2.98	119,000	3.23
32	97,000	2.52	106,000	2.77	116,000	3.02	125,000	3.27
33	102,000	2.56	111,000	2.81	121,000	3.06	131,000	3.31
34	106,000	2.59	116,000	2.84	127,000	3.09	137,000	3.34
35	111,000	2.62	121,000	2.87	132,000	3.12	143,000	3.38
36	116,000	2.65	127,000	2.90	137,000	3.15	148,000	3.41
37	120,000	2.68	132,000	2.93	143,000	3.18	154,000	3.44
38	125,000	2.70	137,000	2.96	148,000	3.21	160,000	3.46
39	130,000	2.73	142,000	2.98	154,000	3.24	166,000	3.49
40	134,000	2.75	147,000	3.01	159,000	3.26	172,000	3.52
41	139,000	2.77	152,000	3.03	165,000	3.28	177,000	3.54
42	144,000	2.79	157,000	3.05	170,000	3.31	183,000	3.56
43	149,000	2.81	162,000	3.07	176,000	3.33	189,000	3.58
44	153,000	2.83	167,000	3.09	181,000	3.35	195,000	3.61
45	158,000	2.85	172,000	3.11	187,000	3.37	201,000	3.63
46	163,000	2.87	178,000	3.13	192,000	3.39	207,000	3.64
47	168,000	2.89	183,000	3.14	198,000	3.41	213,000	3.66
48	173,000	2.90	188,000	3.16	203,000	3.42	219,000	3.68
49	177,000	2.92	193,000	3.18	209,000	3.44	224,000	3.70
50	182,000	2.93	198,000	3.19	214,000	3.45	230,000	3.71
51	187,000	2.95	203,000	3.21	220,000	3.47	236,000	3.73
52	192,000	2.96	208,000	3.22	225,000	3.48	242,000	3.74
53	196,000	2.98	214,000	3.23	231,000	3.50	248,000	3.76
54	201,000	2.99	219,000	3.25	236,000	3.51	254,000	3.77
55	206,000	3.00	224,000	3.26	242,000	3.52	260,000	3.79
56	211,000	3.01	229,000	3.27	247,000	3.53	266,000	3.80
57	216,000	3.02	234,000	3.28	253,000	3.55	272,000	3.81
58	220,000	3.03	239,000	3.29	258,000	3.56	278,000	3.82
59	225,000	3.04	245,000	3.31	264,000	3.57	283,000	3.83
60	230,000	3.05	250,000	3.32	270,000	3.58	289,000	3.84

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

8-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
23	.....	.....	.....	.....	.....	.....	50,200	1.86
24	.....	.....	.....	.....	47,800	1.68	54,500	1.93
25	.....	.....	.....	.....	51,700	1.75	58,800	2.00
26	.....	.....	48,100	1.55	55,700	1.81	63,200	2.06
27	43,800	1.35	51,800	1.61	59,700	1.86	67,600	2.12
28	47,100	1.40	55,400	1.66	63,700	1.91	72,000	2.17
29	50,400	1.44	59,100	1.70	67,800	1.96	76,500	2.22
30	53,700	1.49	62,800	1.75	71,900	2.01	81,000	2.27
31	57,000	1.53	66,500	1.79	76,000	2.05	85,400	2.31
32	60,400	1.56	70,200	1.83	80,100	2.09	90,000	2.35
33	63,700	1.60	74,000	1.86	84,200	2.12	94,500	2.39
34	67,100	1.63	77,700	1.89	88,400	2.16	99,000	2.42
35	70,500	1.66	81,500	1.93	92,500	2.19	104,000	2.46
36	73,900	1.69	85,300	1.96	96,700	2.22	108,000	2.49
37	77,300	1.72	89,100	1.98	101,000	2.25	113,000	2.52
38	80,600	1.74	92,900	2.01	105,000	2.28	117,000	2.55
39	84,000	1.77	96,700	2.04	109,000	2.30	122,000	2.57
40	87,500	1.79	101,000	2.06	114,000	2.33	127,000	2.60
41	91,000	1.81	104,000	2.08	118,000	2.35	131,000	2.62
42	94,400	1.83	108,000	2.11	122,000	2.38	136,000	2.65
43	97,900	1.85	112,000	2.13	126,000	2.40	140,000	2.67
44	101,000	1.87	116,000	2.15	131,000	2.42	145,000	2.69
45	105,000	1.89	120,000	2.16	135,000	2.44	150,000	2.71
46	108,000	1.91	124,000	2.18	139,000	2.46	154,000	2.73
47	112,000	1.93	128,000	2.20	143,000	2.47	159,000	2.75
48	115,000	1.94	131,000	2.22	148,000	2.49	164,000	2.77
49	119,000	1.96	135,000	2.23	152,000	2.51	168,000	2.78
50	122,000	1.97	139,000	2.25	156,000	2.52	173,000	2.80
51	126,000	1.99	143,000	2.26	160,000	2.54	178,000	2.82
52	129,000	2.00	147,000	2.28	165,000	2.55	182,000	2.83
53	133,000	2.01	151,000	2.29	169,000	2.57	187,000	2.84
54	136,000	2.03	155,000	2.30	173,000	2.58	192,000	2.86
55	140,000	2.04	159,000	2.32	178,000	2.59	197,000	2.87
56	143,000	2.05	163,000	2.33	182,000	2.61	201,000	2.89
57	147,000	2.06	167,000	2.34	186,000	2.62	206,000	2.90
58	150,000	2.07	170,000	2.35	191,000	2.63	211,000	2.91
59	154,000	2.08	174,000	2.36	195,000	2.64	215,000	2.92
60	157,000	2.09	178,000	2.37	199,000	2.65	220,000	2.93

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

8-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
19	.....	.....	.....	.....	.....	.....	53,000	2.44
20	.....	.....	.....	.....	53,400	2.32	58,600	2.56
21	.....	.....	53,000	2.18	58,600	2.42	64,200	2.67
22	52,000	2.03	58,000	2.27	64,000	2.52	69,900	2.76
23	56,600	2.11	63,000	2.36	69,400	2.60	75,700	2.85
24	61,300	2.18	68,000	2.43	74,800	2.68	81,500	2.93
25	66,000	2.25	73,100	2.50	80,300	2.76	87,400	3.01
26	70,700	2.32	78,300	2.57	85,800	2.82	93,300	3.08
27	75,500	2.38	83,400	2.63	91,400	2.88	99,300	3.14
28	80,300	2.43	88,600	2.69	96,900	2.94	105,000	3.20
29	85,200	2.48	93,900	2.74	103,000	3.00	111,000	3.26
30	90,000	2.53	99,100	2.79	108,000	3.05	117,000	3.31
31	94,900	2.57	104,000	2.83	114,000	3.09	123,000	3.36
32	99,800	2.61	110,000	2.87	120,000	3.14	129,000	3.40
33	105,000	2.65	115,000	2.91	125,000	3.18	136,000	3.44
34	110,000	2.69	120,000	2.95	131,000	3.22	142,000	3.48
35	115,000	2.72	125,000	2.99	137,000	3.25	148,000	3.52
36	120,000	2.76	131,000	3.02	142,000	3.29	154,000	3.56
37	125,000	2.79	136,000	3.05	148,000	3.32	160,000	3.59
38	130,000	2.82	142,000	3.08	154,000	3.35	166,000	3.62
39	135,000	2.84	147,000	3.11	160,000	3.38	172,000	3.65
40	140,000	2.87	153,000	3.14	166,000	3.41	179,000	3.68
41	145,000	2.89	158,000	3.17	171,000	3.44	185,000	3.71
42	150,000	2.92	163,000	3.19	177,000	3.46	191,000	3.73
43	155,000	2.94	169,000	3.21	183,000	3.49	197,000	3.76
44	160,000	2.96	174,000	3.24	189,000	3.51	203,000	3.78
45	165,000	2.98	180,000	3.26	195,000	3.53	210,000	3.80
46	170,000	3.00	185,000	3.28	201,000	3.55	216,000	3.83
47	175,000	3.02	191,000	3.30	206,000	3.57	222,000	3.85
48	180,000	3.04	196,000	3.32	212,000	3.59	229,000	3.87
49	185,000	3.06	202,000	3.34	218,000	3.61	235,000	3.89
50	190,000	3.08	207,000	3.35	224,000	3.63	241,000	3.90
51	195,000	3.09	213,000	3.37	230,000	3.65	247,000	3.92
52	200,000	3.11	218,000	3.38	236,000	3.66	254,000	3.94
53	205,000	3.12	224,000	3.40	242,000	3.68	260,000	3.95
54	210,000	3.14	229,000	3.41	248,000	3.69	266,000	3.97
55	216,000	3.15	235,000	3.43	254,000	3.71	273,000	3.99
56	221,000	3.17	240,000	3.44	259,000	3.72	279,000	4.00
57	226,000	3.18	246,000	3.46	265,000	3.74	285,000	4.02
58	231,000	3.19	251,000	3.47	271,000	3.75	291,000	4.03
59	236,000	3.20	257,000	3.48	277,000	3.76	298,000	4.04
60	241,000	3.21	262,000	3.49	283,000	3.77	304,000	4.05

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

9-Inch Slab

Depth in inches	$f_c = 450$ Moment	Area	$f_c = 500$ Moment	Area	$f_c = 550$ Moment	Area	$f_c = 600$ Moment	Area
25	.....	.....	.....	.....	.....	.....	59,400	2.02
26	.....	.....	.....	.....	.....	.....	64,200	2.10
27	.....	.....	.....	.....	60,400	1.89	69,000	2.18
28	.....	.....	.....	.....	64,900	1.96	73,900	2.24
29	.....	.....	59,900	1.73	69,300	2.02	78,800	2.30
30	.....	.....	64,000	1.79	73,800	2.08	83,700	2.36
31	57,800	1.55	68,100	1.84	78,400	2.13	88,700	2.42
32	61,500	1.60	72,200	1.89	82,900	2.18	93,700	2.47
33	65,200	1.64	76,300	1.93	87,500	2.22	98,700	2.52
34	68,900	1.68	80,500	1.98	92,100	2.27	104,000	2.56
35	72,600	1.72	84,700	2.02	96,700	2.31	109,000	2.60
36	76,400	1.76	88,900	2.05	101,000	2.35	114,000	2.64
37	80,200	1.79	93,100	2.09	106,000	2.39	119,000	2.68
38	83,900	1.82	97,300	2.12	111,000	2.42	124,000	2.72
39	87,900	1.86	102,000	2.15	115,000	2.45	129,000	2.75
40	91,600	1.89	106,000	2.19	120,000	2.48	134,000	2.78
41	95,400	1.91	110,000	2.21	125,000	2.51	139,000	2.82
42	99,200	1.94	114,000	2.24	130,000	2.54	145,000	2.84
43	103,000	1.97	119,000	2.27	134,000	2.57	150,000	2.87
44	107,000	1.99	123,000	2.29	139,000	2.60	155,000	2.90
45	111,000	2.01	127,000	2.32	144,000	2.62	160,000	2.93
46	115,000	2.04	132,000	2.34	149,000	2.65	165,000	2.95
47	119,000	2.06	136,000	2.36	153,000	2.67	171,000	2.97
48	122,000	2.08	140,000	2.38	158,000	2.69	176,000	3.00
49	126,000	2.10	145,000	2.40	163,000	2.71	181,000	3.02
50	130,000	2.12	149,000	2.42	168,000	2.73	186,000	3.04
51	134,000	2.13	153,000	2.44	172,000	2.75	192,000	3.06
52	138,000	2.15	158,000	2.46	177,000	2.77	197,000	3.08
53	142,000	2.17	162,000	2.48	182,000	2.79	202,000	3.09
54	146,000	2.18	166,000	2.49	187,000	2.80	207,000	3.11
55	150,000	2.20	171,000	2.51	192,000	2.82	213,000	3.13
56	154,000	2.21	175,000	2.52	196,000	2.84	218,000	3.15
57	158,000	2.23	179,000	2.54	201,000	2.85	223,000	3.16
58	162,000	2.24	184,000	2.56	206,000	2.87	228,000	3.17
59	166,000	2.26	188,000	2.57	211,000	2.88	234,000	3.19
60	169,000	2.27	193,000	2.58	216,000	2.89	239,000	3.21

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 15$

9-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
21	.....	.....	.....	.....	.....	.....	64,800	2.70
22	.....	.....	.....	.....	64,600	2.55	71,000	2.82
23	.....	.....	63,700	2.39	70,500	2.66	77,300	2.93
24	61,900	2.22	69,200	2.49	76,400	2.76	83,700	3.04
25	67,000	2.30	74,800	2.58	82,500	2.86	90,100	3.13
26	72,300	2.38	80,400	2.66	88,500	2.94	96,600	3.22
27	77,600	2.46	86,200	2.74	94,600	3.02	103,000	3.30
28	82,900	2.52	91,800	2.81	101,000	3.09	110,000	3.37
29	88,200	2.59	97,600	2.87	107,000	3.16	116,000	3.44
30	93,600	2.65	103,000	2.94	113,000	3.22	123,000	3.51
31	99,000	2.71	109,000	2.99	120,000	3.28	130,000	3.57
32	104,000	2.76	115,000	3.05	126,000	3.34	137,000	3.63
33	110,000	2.81	121,000	3.10	132,000	3.39	143,000	3.68
34	115,000	2.85	127,000	3.15	138,000	3.44	150,000	3.73
35	121,000	2.90	133,000	3.19	145,000	3.49	157,000	3.78
36	126,000	2.94	139,000	3.23	151,000	3.53	164,000	3.82
37	132,000	2.98	145,000	3.27	158,000	3.57	171,000	3.87
38	137,000	3.02	151,000	3.31	164,000	3.61	178,000	3.91
39	143,000	3.05	157,000	3.35	171,000	3.65	184,000	3.95
40	149,000	3.08	163,000	3.38	177,000	3.68	191,000	3.98
41	154,000	3.12	169,000	3.42	184,000	3.72	198,000	4.02
42	160.000	3.15	175,000	3.45	190,000	3.75	205,000	4.05
43	165,000	3.17	181,000	3.48	197,000	3.78	212,000	4.08
44	171,000	3.20	187,000	3.50	203,000	3.81	219,000	4.11
45	177,000	3.23	193,000	3.53	210,000	3.84	226,000	4.14
46	182,000	3.25	199,000	3.56	216,000	3.86	233,000	4.17
47	188,000	3.28	205,000	3.58	223,000	3.89	240,000	4.19
48	194,000	3.30	211,000	3.61	229,000	3.91	247,000	4.22
49	199,000	3.32	218,000	3.63	236,000	3.94	254,000	4.24
50	205,000	3.34	224,000	3.65	242,000	3.96	261,000	4.27
51	211,000	3.37	230,000	3.67	249,000	3.98	268,000	4.29
52	216,000	3.38	236,000	3.69	256.000	4.00	275,000	4.31
53	222,000	3.40	242,000	3.71	262.000	4.02	282,000	4.33
54	228,000	3.42	248,000	3.73	269,000	4.04	289,000	4.35
55	233,000	3.44	254,000	3.75	275,000	4.06	296,000	4.37
56	239,000	3.46	261,000	3.77	282.000	4.08	303,000	4.39
57	245,000	3.48	267,000	3.78	289.000	4.09	310,000	4.41
58	251,000	3.49	273,000	3.80	295,000	4.11	317,000	4.42
59	256,000	3.50	279,000	3.81	302,000	4.13	324,000	4.44
60	262,000	3.52	285,000	3.83	308,000	4.14	332,000	4.46

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

2-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
6	.....	.....	3,840	0.54	4,260	0.60	4,680	0.67
7	4,590	0.55	5,110	0.61	5,630	0.68	6,150	0.74
8	5,790	0.60	6,410	0.67	7,030	0.73	7,640	0.80
9	7,020	0.64	7,740	0.71	8,450	0.78	9,170	0.84
10	8,260	0.68	9,080	0.75	9,890	0.81	10,700	0.88
11	9,510	0.70	10,430	0.77	11,340	0.84	12,250	0.91
12	10,780	0.73	11,790	0.80	12,800	0.86	13,810	0.93
13	12,040	0.75	13,150	0.82	14,300	0.88	15,400	0.95
14	13,310	0.76	14,520	0.83	15,700	0.90	16,900	0.97
15	14,580	0.78	15,900	0.85	17,200	0.92	18,500	0.99
16	15,900	0.79	17,300	0.86	18,700	0.93	20,100	1.00
17	17,100	0.80	18,700	0.87	20,200	0.94	21,700	1.01
18	18,400	0.81	20,000	0.88	21,600	0.95	23,200	1.02
19	19,700	0.82	21,400	0.89	23,100	0.96	24,800	1.03
20	21,000	0.83	22,800	0.90	24,600	0.97	26,400	1.04
21	22,300	0.83	24,200	0.90	26,100	0.98	28,000	1.05
22	23,600	0.84	25,600	0.91	27,600	0.98	29,600	1.05
23	24,900	0.85	27,000	0.92	29,100	0.99	31,200	1.06
24	26,200	0.85	28,400	0.92	30,600	0.99	32,800	1.07

2½-Inch Slab

8	6,060	0.64	6,780	0.72	7,500	0.80	8,220	0.87
9	7,550	0.70	8,380	0.78	9,230	0.86	10,080	0.94
10	9,050	0.75	10,020	0.84	10,980	0.92	11,940	1.00
11	10,580	0.80	11,670	0.88	12,760	0.96	13,840	1.05
12	12,130	0.83	13,340	0.92	14,550	1.00	15,800	1.08
13	13,690	0.86	15,000	0.95	16,400	1.03	17,700	1.12
14	15,300	0.89	16,700	0.97	18,200	1.06	19,600	1.14
15	16,800	0.91	18,400	0.99	20,000	1.08	21,600	1.17
16	18,400	0.93	20,100	1.01	21,800	1.10	23,500	1.19
17	20,000	0.95	21,800	1.03	23,700	1.12	25,500	1.21
18	21,600	0.96	23,500	1.05	25,500	1.14	27,500	1.22
19	23,200	0.97	25,300	1.06	27,300	1.15	29,400	1.24
20	24,800	0.99	27,000	1.07	29,200	1.16	31,400	1.25
21	26,400	1.00	28,700	1.09	31,000	1.17	33,400	1.26
22	28,000	1.01	30,400	1.09	32,900	1.18	35,300	1.27
23	29,600	1.02	32,200	1.11	34,700	1.19	37,300	1.28
24	31,200	1.03	33,900	1.11	36,600	1.20	39,300	1.29

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

3-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
8	.....	.....	.....	.....	.....	.....	8,400	0.90
9	.....	.....	8,630	0.81	9,580	0.91	10,530	1.00
10	9,440	0.79	10,530	0.89	11,620	0.98	12,720	1.08
11	11,220	0.85	12,460	0.95	13,700	1.05	14,940	1.15
12	13,040	0.90	14,430	1.00	15,800	1.10	17,200	1.20
13	14,870	0.95	16,400	1.05	17,900	1.15	19,500	1.25
14	16,700	0.98	18,400	1.08	20,100	1.19	21,800	1.29
15	18,600	1.02	20,400	1.12	22,200	1.22	24,100	1.32
16	20,500	1.04	22,400	1.15	24,400	1.25	26,400	1.35
17	22,400	1.07	24,400	1.17	26,600	1.27	28,700	1.38
18	24,200	1.09	26,500	1.19	28,800	1.30	31,100	1.40
19	26,100	1.11	28,600	1.21	31,000	1.32	33,400	1.42
20	28,000	1.13	30,600	1.23	33,200	0.34	35,800	1.44
21	30,000	1.14	32,700	1.25	35,400	1.35	38,100	1.46
22	31,900	1.16	34,700	1.26	37,600	1.37	40,500	1.47
23	33,800	1.17	36,800	1.28	39,800	1.38	42,800	1.49
24	35,700	1.18	38,900	1.29	42,000	1.39	45,200	1.50
25	37,600	1.19	40,900	1.30	44,200	1.41	47,600	1.51
26	39,500	1.21	43,000	1.31	46,500	1.42	49,900	1.52
27	41,500	1.21	45,100	1.32	48,700	1.43	52,300	1.53
28	43,400	1.22	47,100	1.33	50,900	1.44	54,700	1.54
29	45,300	1.23	49,200	1.34	53,100	1.44	57,000	1.55
30	47,200	1.24	51,300	1.35	55,400	1.45	59,400	1.56
31	49,200	1.25	53,400	1.35	57,600	1.46	61,800	1.57
32	51,100	1.25	55,500	1.36	59,800	1.47	64,200	1.58
33	53,000	1.26	57,600	1.37	62,100	1.47	66,600	1.58
34	55,000	1.27	59,600	1.37	64,300	1.48	69,000	1.59
35	56,900	1.27	61,700	1.38	66,500	1.49	71,300	1.59
36	58,800	1.28	63,800	1.38	68,800	1.49	73,700	1.60

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

3½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
10	.....	.....	.....	.....	11,870	1.01	13,080	1.12
11	11,470	0.88	12,850	0.99	14,240	1.10	15,600	1.21
12	13,530	0.95	15,100	1.06	16,600	1.17	18,200	1.28
13	15,600	1.01	17,300	1.12	19,100	1.23	20,800	1.35
14	17,700	1.06	19,600	1.17	21,500	1.29	23,400	1.40
15	19,900	1.10	21,900	1.21	24,000	1.33	26,100	1.45
16	22,000	1.14	24,300	1.25	26,500	1.37	28,700	1.48
17	24,200	1.17	26,600	1.29	29,100	1.41	31,400	1.52
18	26,400	1.20	29,000	1.32	31,500	1.44	34,100	1.56
19	28,600	1.23	31,300	1.35	34,100	1.46	36,800	1.58
20	30,800	1.25	33,700	1.37	36,600	1.49	39,600	1.61
21	33,000	1.27	36,100	1.39	39,200	1.51	42,300	1.63
22	35,200	1.29	38,500	1.41	41,700	1.53	45,000	1.65
23	37,400	1.31	40,900	1.43	44,200	1.55	47,800	1.67
24	39,600	1.33	43,300	1.45	46,900	1.57	50,500	1.69
25	41,900	1.34	45,700	1.46	49,500	1.59	53,300	1.71
26	44,100	1.36	48,100	1.48	52,100	1.60	56,000	1.72
27	46,300	1.37	50,500	1.49	54,600	1.61	58,800	1.74
28	58,600	1.38	52,900	1.50	57,200	1.63	61,500	1.75
29	50,800	1.39	55,300	1.52	59,800	1.64	64,300	1.76
30	53,100	1.40	57,700	1.53	62,400	1.65	67,100	1.77
31	55,300	1.41	60,100	1.54	65,000	1.66	69,800	1.78
32	57,600	1.42	62,600	1.55	67,600	1.67	72,600	1.79
33	59,800	1.43	65,000	1.55	70,200	1.68	75,400	1.80
34	62,000	1.44	67,400	1.56	72,700	1.69	78,100	1.81
35	64,300	1.45	69,800	1.57	75,400	1.70	80,900	1.82
36	66,600	1.45	72,300	1.58	78,000	1.70	83,700	1.83

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

4-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
11	.....	.....	.....	.....	.....	.....	15,900	1.24
12	.....	.....	15,300	1.08	17,000	1.21	18,700	1.33
13	16,000	1.03	17,900	1.16	19,800	1.29	21,600	1.42
14	18,400	1.10	20,400	1.23	22,500	1.36	24,600	1.49
15	20,800	1.16	23,000	1.29	25,300	1.42	27,600	1.55
16	23,200	1.21	25,600	1.34	28,100	1.47	30,600	1.60
17	25,600	1.25	28,300	1.38	30,900	1.51	33,600	1.65
18	28,100	1.29	30,900	1.42	33,800	1.56	36,700	1.69
19	30,600	1.32	33,600	1.46	36,700	1.59	39,700	1.72
20	33,000	1.35	36,300	1.49	39,600	1.62	42,800	1.76
21	35,500	1.38	39,000	1.52	42,500	1.65	45,900	1.79
22	38,100	1.41	41,700	1.55	45,400	1.68	49,000	1.82
23	40,600	1.43	44,400	1.57	48,300	1.71	52,100	1.84
24	43,100	1.45	47,100	1.59	51,200	1.73	55,200	1.87
25	45,600	1.47	49,900	1.61	54,100	1.75	58,400	1.89
26	48,200	1.49	52,600	1.63	57,200	1.77	61,500	1.91
27	50,700	1.51	55,300	1.65	60,000	1.79	64,600	1.93
28	53,200	1.53	58,100	1.66	62,900	1.80	67,800	1.94
29	55,800	1.54	60,800	1.68	65,900	1.82	70,900	1.96
30	58,300	1.55	63,600	1.69	68,800	1.83	74,000	1.97
31	60,900	1.57	66,300	1.71	71,800	1.85	77,200	1.99
32	63,500	1.58	69,100	1.72	74,700	1.86	80,400	2.00
33	66,000	1.59	71,800	1.73	77,700	1.87	83,500	2.01
34	68,600	1.60	74,600	1.74	80,600	1.88	86,600	2.02
35	71,100	1.61	77,400	1.75	83,600	1.89	89,800	2.03
36	73,700	1.62	80,100	1.76	86,600	1.90	93,000	2.04
37	76,300	1.63	82,900	1.77	89,500	1.91	96,200	2.05
38	78,900	1.64	85,700	1.78	92,500	1.92	99,400	2.06
39	81,400	1.65	88,500	1.79	95,500	1.93	103,000	2.07
40	84,000	1.65	91,200	1.80	98,400	1.94	106,000	2.08
41	86.600	1.66	94,000	1.80	101,000	1.94	109,000	2.09
42	89,100	1.67	96,800	1.81	104,000	1.95	112,000	2.10

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

4½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
12	.....	.....	.....	.....	.....	.....	18,900	1.35
13	.....	.....	.....	.....	20,100	1.31	22,100	1.45
14	18,600	1.12	20,800	1.26	23,100	1.40	25,300	1.54
15	21,200	1.19	23,700	1.33	26,200	1.48	28,600	1.62
16	23,900	1.25	26,600	1.40	29,300	1.54	32,000	1.69
17	26,600	1.31	29,500	1.45	32,400	1.60	35,300	1.75
18	29,300	1.36	32,500	1.50	35,600	1.65	38,700	1.80
19	32,100	1.40	35,400	1.55	38,800	1.70	42,100	1.85
20	34,800	1.44	38,400	1.59	42,000	1.74	45,500	1.89
21	37,600	1.48	41,400	1.63	45,200	1.78	49,000	1.93
22	40,400	1.51	44,400	1.66	48,400	1.81	52,400	1.96
23	43,200	1.54	47,500	1.69	51,700	1.84	55,900	2.00
24	46,000	1.57	50,500	1.72	54,900	1.87	59,400	2.02
25	48,900	1.59	53,500	1.74	58,200	1.90	62,900	2.05
26	51,700	1.61	56,600	1.77	61,500	1.92	66,400	2.08
27	54,600	1.64	59,700	1.79	64,800	1.95	69,900	2.10
28	57,400	1.66	62,700	1.81	68,100	1.97	73,400	2.12
29	60,200	1.67	65,800	1.83	71,400	1.99	76,900	2.14
30	63,100	1.69	68,900	1.85	74,700	2.00	80,500	2.16
31	66,000	1.71	72,000	1.86	78,000	2.02	84,000	2.18
32	68,800	1.72	75,100	1.88	81,300	2.04	87,500	2.19
33	71,700	1.74	78,200	1.89	84,600	2.05	91,100	2.21
34	74,600	1.75	81,300	1.91	87,900	2.07	94,600	2.22
35	77,400	1.76	84,400	1.92	91,300	2.08	98,200	2.24
36	80,300	1.78	87,400	1.93	94,600	2.09	102,000	2.25
37	83,200	1.79	90,500	1.94	97,900	2.10	105,000	2.26
38	86,100	1.80	93,600	1.96	101,000	2.11	109,000	2.27
39	89,000	1.81	96,800	1.97	105,000	2.13	112,000	2.28
40	91,800	1.82	99,900	1.98	108,000	2.14	116,000	2.29
41	94,800	1.83	103,000	1.99	111,000	2.15	119,000	2.30
42	97,600	1.83	106,000	1.99	114,000	2.15	123,000	2.31

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

5-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
14	.....	.....	.....	.....	23,300	1.42	25,700	1.57
15	.....	.....	24,000	1.35	26,600	1.51	29,300	1.67
16	24,200	1.28	27,100	1.43	30,000	1.59	32,900	1.75
17	27,200	1.34	30,300	1.50	33,400	1 66	36,600	1.82
18	30,200	1.40	33,500	1.57	36,900	1.73	40,300	1.89
19	33,200	1.46	36,800	1.62	40,400	1.78	44,000	1.95
20	36,200	1.51	40,100	1.67	43,900	1.84	47,800	2.00
21	39,300	1.55	43,400	1.72	47,500	1.88	51,600	2.05
22	42,300	1.59	46,700	1.76	51,000	1.92	55,400	2.09
23	45,400	1.63	50,000	1.80	54,600	1.96	59,200	2.13
24	48,500	1.66	53,400	1.83	58,200	2.00	63,000	2.17
25	51,600	1.69	56,700	1.86	61,800	2.03	66,900	2.20
26	54,800	1.72	60,100	1.89	65,400	2.06	70,800	2.23
27	57,900	1.75	63,500	1.92	69,100	2.09	74,600	2.26
28	61,000	1.77	66,900	1.94	72,700	2.12	78,500	2.29
29	64,200	1.80	70,200	1.97	76,300	2.14	82,400	2.31
30	67,400	1.82	73,700	1.99	80,000	2.16	86,300	2.33
31	70,500	1.84	77,100	2.01	83,600	2.18	90,200	2.36
32	73,700	1.86	80,500	2.03	87,300	2.20	94,100	2.37
33	76,800	1.87	83,900	2.05	91,000	2.22	98,000	2.39
34	80,000	1.89	87,300	2.06	94,600	2.24	102,000	2.41
35	83.200	1.91	90,800	2.08	98,300	2.25	106,000	2.43
36	86,400	1.92	94,200	2.10	102,000	2.27	110,000	2.44
37	89,600	1.93	97,600	2.11	106,000	2.28	114,000	2.46
38	92,800	1.95	101,000	2.12	109,000	2.30	118,000	2.47
39	95,900	1.96	104,000	2.14	113,000	2.31	122,000	2.49
40	99,100	1.97	108,000	2.15	117,000	2.32	126,000	2.50
41	102,000	1.98	111,000	2.16	120,000	2.34	129,000	2.52
42	106,000	1.99	115,000	2.17	124,000	2.35	133,000	2.53
43	109,000	2.00	118,000	2.18	128,000	2.36	137,000	2.54
44	112,000	2.01	122,000	2.19	132,000	2.37	141,000	2.55
45	115,000	2.02	125,000	2.20	135,000	2.38	145,000	2.56
46	118,000	2.03	129,000	2.21	139,000	2.39	149,000	2.57
47	122,000	2.04	132,000	2.22	143,000	2.40	153,000	2.57
48	125,000	2.05	136,000	2.23	146,000	2.41	157,000	2.58

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

5½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
15	.....	.....	.....	.....	.....	.....	29,500	1.69
16	.....	.....	.....	.....	30,400	1.62	33,400	1.79
17	27,400	1.36	30,700	1.53	34,100	1.70	37,400	1.88
18	30,600	1.43	34,200	1.61	37,800	1.78	41,400	1.96
19	33,900	1.50	37,700	1.67	41,600	1.85	45,500	2.03
20	37,200	1.56	41,300	1.73	45,400	1.91	49,500	2.09
21	40,500	1.61	44,900	1.79	49,300	1.97	53,700	2.15
22	43,800	1.66	48,500	1.84	53,100	2.02	57,800	2.20
23	47,200	1.70	52,100	1.88	57,000	2.07	62,000	2.25
24	50,600	1.74	55,800	1.93	61,000	2.11	66,200	2.29
25	53,900	1.78	59,400	1.96	64,900	2.15	70,400	2.33
26	57,300	1.82	63,100	2.00	68,800	2.18	74,600	2.37
27	60,800	1.85	66,800	2.03	72,800	2.22	78,800	2.40
28	64,200	1.88	70,500	2.06	76,800	2.25	83,000	2.44
29	67,600	1.91	74,200	2.09	80,800	2.28	87,300	2.47
30	71,100	1.93	77,900	2.12	84,700	2.31	91,600	2.49
31	74,500	1.96	81,600	2.14	88,700	2.33	95,800	2.52
32	78,000	1.98	85,400	2.17	92,800	2.36	100,000	2.54
33	81,500	2.00	89,100	2.19	96,800	2.38	104,000	2.57
34	85,000	2.02	92,900	2.21	101,000	2.40	109,000	2.59
35	88,400	2.04	96,600	2.23	105,000	2.42	113,000	2.61
36	91,900	2.06	100,000	2.25	109,000	2.44	117,000	2.63
37	95,400	2.07	104,000	2.26	113,000	2.46	122,000	2.65
38	98,900	2.09	108,000	2.28	117,000	2.47	126,000	2.66
39	102,000	2.10	112,000	2.30	121,000	2.49	130,000	2.68
40	106,000	2.12	115,000	2.31	125,000	2.50	135,000	2.70
41	109,000	2.13	119,000	2.32	129,000	2.52	139,000	2.71
42	113,000	2.14	123,000	2.34	133,000	2.53	143,000	2.72
43	116,000	2.16	127,000	2.35	137,000	2.54	148,000	2.74
44	120,000	2.17	131,000	2.36	141,000	2.56	152,000	2.75
45	123,000	2.18	134,000	2.37	145,000	2.57	156,000	2.76
46	127,000	2.19	138,000	2.39	149,000	2.58	161,000	2.77
47	130,000	2.20	142,000	2.40	153,000	2.59	165,000	2.78
48	134,000	2.21	146,000	2.41	157,000	2.60	169,000	2.80

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

6-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
16	.....	.....	.....	.....	.....	.....	33,600	1.80
17	.....	.....	.....	.....	34,300	1.72	37,800	1.91
18	.....	.....	34,500	1.62	38,300	1.81	42,100	2.00
19	34,200	1.52	38,300	1.71	42,400	1.89	46,500	2.08
20	37,700	1.59	42,100	1.78	46,500	1.97	50,900	2.16
21	41,300	1.65	46,000	1.84	50,600	2.04	55,300	2.23
22	44.900	1.71	49,900	1.90	54,800	2.10	59,800	2.29
23	48.500	1.76	53,800	1.96	59,000	2.15	64,300	2.35
24	52,200	1.81	57,700	2.01	63,200	2.20	68,800	2.40
25	55.800	1.85	61,700	2.05	67,500	2.25	73,300	2.45
26	59.500	1.90	65,600	2.09	71,800	2.29	77,900	2.49
27	63,200	1.93	69,600	2.13	76,000	2.33	82,500	2.53
28	66,900	1.96	73,600	2.16	80,400	2.36	87,100	2.57
29	70,600	2.00	77,600	2.20	84,700	2.40	91,600	2.61
30	74,400	2.03	81,700	2.23	89,000	2.44	96,300	2.64
31	78,100	2.06	85,700	2.26	93,300	2.47	101,000	2.67
32	81,900	2.09	89,800	2.29	97,700	2.50	106,000	2.70
33	85,600	2.11	93,800	2.32	102,000	2.52	110,000	2.73
34	89,400	2.14	97,800	2.34	106,000	2.55	115,000	2.75
35	93,200	2.16	102,000	2.36	111,000	2.57	120,000	2.78
36	97,000	2.18	106,000	2.39	115,000	2.59	124,000	2.80
37	101,000	2.20	110,000	2.41	120,000	2.62	129,000	2.82
38	105,000	2.22	114,000	2.43	124,000	2.63	134,000	2.84
39	108,000	2.24	118,000	2.45	129,000	2.65	138,000	2.86
40	112,000	2.26	122,000	2.46	133,000	2.67	143,000	2.88
41	116,000	2.27	126,000	2.48	137,000	2.69	148,000	2.90
42	120,000	2.29	131,000	2.50	142,000	2.71	152,500	2.92
43	124,000	2.30	135,000	2.51	146,000	2.72	157,000	2.93
44	127,000	2.32	139,000	2.53	150,000	2.74	162,000	2.95
45	131,000	2.33	143,000	2.54	155,000	2.75	167,000	2.96
46	135,000	2.34	147,000	2.55	159,000	2.76	171,000	2.97
47	139,000	2.35	151,000	2.57	164,000	2.78	176,000	2.99
48	143,000	2.37	155,000	2.58	168,000	2.79	181,000	3.00
49	147,000	2.38	160,000	2.59	173,000	2.80	186,000	3.01
50	150,000	2.39	164,000	2.60	177,000	2.81	190,000	3.02
51	154,000	2.40	168,000	2.61	181,000	2.82	195,000	3.03
52	158,000	2.41	172,000	2.62	186,000	2.83	200,000	3.05
53	162,000	2.42	176,000	2.63	190,000	2.84	204,000	3.06
54	166,000	2.43	180,000	2.64	195,000	2.85	209,000	3.07

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

6½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
18	.....	.....	.....	.....	.....	.....	42,500	2.02
19	.....	.....	38,500	1.72	42,800	1.92	47,100	2.12
20	38,000	1.60	42,600	1.80	47,200	2.01	51,800	2.21
21	41,700	1.67	46,700	1.88	51,600	2.08	56,500	2.29
22	45,600	1.74	50,800	1.95	56,000	2.16	61,300	2.36
23	49,400	1.80	55,000	2.01	60,600	2.22	66,100	2.43
24	53,300	1.86	59,200	2.07	65,100	2.28	71,000	2.49
25	57,300	1.91	63,400	2.12	69,600	2.34	75,800	2.55
26	61,200	1.96	67,700	2.17	74,200	2.39	80,700	2.60
27	65,200	2.00	72,000	2.22	78,800	2.43	85,700	2.65
28	69,100	2.05	76,300	2.26	83,400	2.48	90,600	2.69
29	73,100	2.09	80,600	2.30	88,100	2.52	95,600	2.73
30	76,200	2.12	85,000	2.34	92,800	2.56	101,000	2.77
31	81,200	2.16	89,300	2.37	97,400	2.59	105,000	2.81
32	85,200	2.19	93,700	2.41	102,000	2.62	110,000	2.84
33	89,300	2.22	98,000	2.44	107,000	2.66	115,000	2.87
34	93,400	2.24	102,000	2.47	112,000	2.69	121,000	2.91
35	97,400	2.27	107,000	2.49	116,000	2.71	126,000	2.93
36	102,000	2.30	111,000	2.52	121,000	2.74	131,000	2.96
37	106,000	2.32	116,000	2.54	126,000	2.76	136,000	2.99
38	110,000	2.34	120,000	2.57	130,000	2.79	141,000	3.01
39	114,000	2.36	124,000	2.59	135,000	2.81	146,000	3.03
40	118,000	2.38	128,000	2.61	140,000	2.83	151,000	3.06
41	122,000	2.40	133,000	2.63	145,000	2.85	156,000	3.08
42	126,000	2.42	138,000	2.65	149,000	2.87	161,000	3.10
43	130,000	2.44	142,000	2.66	154,000	2.89	166,000	3.11
44	134,000	2.45	147,000	2.68	159,000	2.91	171,000	3.13
45	138,000	2.47	151,000	2.70	164,000	2.92	176,000	3.15
46	143,000	2.49	156,000	2.71	168,000	2.94	181,000	3.17
47	147,000	2.50	160,000	2.73	173,000	2.95	187,000	3.18
48	151,000	2.51	164,000	2.74	178,000	2.97	192,000	3.20
49	155,000	2.53	169,000	2.76	183,000	2.98	197,000	3.21
50	159,000	2.54	173,000	2.77	188,000	3.00	202,000	3.22
51	163,000	2.55	178,000	2.78	193,000	3.01	207,000	3.24
52	168,000	2.56	182,000	2.79	197,000	3.02	212,000	3.25
53	172,000	2.58	187,000	2.80	202,000	3.03	217,000	3.26
54	176,000	2.59	191,000	2.82	207,000	3.05	223,000	3.27

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

7-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
19	.....	.....	.....	.....	.....	.....	47,400	2.14
20	.....	.....	.....	.....	47,500	2.02	52,300	2.24
21	.....	.....	47,000	1.90	52,200	2.11	57,300	2.33
22	45,900	1.76	51,400	1.98	56,900	2.20	62,400	2.42
23	50,000	1.83	55,800	2.05	61,700	2.27	67,500	2.50
24	54,100	1.89	60,300	2.12	66,500	2.34	72,700	2.57
25	58,300	1.95	64,800	2.18	71,400	2.41	77,900	2.63
26	62,500	2.01	69,400	2.24	76,200	2.47	83,100	2.69
27	66,700	2.06	73,900	2.29	81,100	2.52	88,400	2.75
28	71,000	2.11	78,500	2.34	86,100	2.57	93,600	2.80
29	75,300	2.16	83,200	2.39	91,000	2.62	98,900	2.85
30	79,500	2.20	87,800	2.43	96,000	2.66	104,000	2.89
31	83,800	2.24	92,400	2.47	101,000	2.70	110,000	2.94
32	88,200	2.27	97,100	2.51	106,000	2.74	115,000	2.97
33	92,500	2.31	102,000	2.54	111,000	2.78	120,000	3.01
34	96,900	2.34	106,000	2.58	116,000	2.81	126,000	3.05
35	101,000	2.37	111,000	2.61	121,000	2.84	131,000	3.08
36	106,000	2.40	116,000	2.64	126,000	2.87	136,000	3.11
37	110,000	2.43	121,000	2.67	131,000	2.90	142,000	3.14
38	114,000	2.45	125,000	2.69	136,000	2.93	147,000	3.17
39	119,000	2.48	130,000	2.72	141,000	2.96	153,000	3.20
40	123,000	2.50	135,000	2.74	146,000	2.98	158,000	3.22
41	127,000	2.52	140,000	2.76	152,000	3.00	164,000	3.24
42	132,000	2.55	144,000	2.79	157,000	3.03	169,000	3.27
43	136,000	2.57	149,000	2.81	162,000	3.05	175,000	3.29
44	141,000	2.58	154,000	2.83	167,000	3.07	180,000	3.31
45	145,000	2.60	159,000	2.84	172,000	3.09	185,000	3.33
46	150,000	2.62	163,000	2.86	177,000	3.11	191,000	3.35
47	154,000	2.64	168,000	2.88	182,000	3.12	196,000	3.37
48	159,000	2.65	173,000	2.90	187,000	3.14	202,000	3.38
49	163,000	2.67	178,000	2.91	193,000	3.16	208,000	3.40
50	167,000	2.68	183,000	2.93	198,000	3.17	213,000	3.42
51	172,000	2.70	187,000	2.94	203,000	3.19	219,000	3.43
52	176,000	2.71	192,000	2.96	208,000	3.20	224,000	3.45
53	181,000	2.73	197,000	2.97	213,000	3.22	230,000	3.46
54	185,000	2.74	202,000	2.98	218,000	3.23	235,000	3.47
55	190,000	2.75	207,000	3.00	224,000	3.24	241,000	3.49
56	194,500	2.76	211,000	3.01	229,000	3.25	246,000	3.50
57	199,000	2.77	216,000	3.02	234,000	3.27	252,000	3.51
58	203,000	2.78	221,000	3.03	239,000	3.28	257,000	3.52
59	208,000	2.79	226,000	3.04	244,000	3.29	263,000	3.53
60	212,000	2.81	231,000	3.05	250,000	3.30	268,000	3.55

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

7½-Inch Slab

Depth in Inches	$f_c = 650$		$f_c = 700$		$f_c = 750$		$f_c = 800$	
	Moment	Area	Moment	Area	Moment	Area	Moment	Area
20	.....	.....	.....	.....	.....	.....	52,500	2.25
21	.....	.....	.....	.....	52,400	2.13	57,800	2.36
22	.....	.....	51,600	1.99	57,400	2.22	63,100	2.45
23	50,200	1.84	56,300	2.07	62,400	2.31	68,500	2.54
24	54,600	1.91	61,000	2.15	67,500	2.39	74,000	2.63
25	59,000	1.98	65,800	2.22	72,700	2.46	79,500	2.70
26	63,400	2.05	70,600	2.29	77,800	2.53	85,000	2.77
27	68,000	2.11	75,500	2.35	83,100	2.59	90,700	2.83
28	72,400	2.16	80,300	2.41	88,300	2.65	96,200	2.89
29	76,900	2.21	85,200	2.46	93,500	2.70	102,000	2.95
30	81,500	2.26	90,200	2.51	98,800	2.75	107,000	3.00
31	86,100	2.31	95,100	2.55	104,000	2.80	113,000	3.05
32	90,700	2.35	100,000	2.60	109,000	2.85	119,000	3.09
33	95,300	2.39	105,000	2.64	115,000	2.89	125,000	3.14
34	100,000	2.43	110,000	2.68	120,000	2.93	130,000	3.18
35	104,000	2.46	115,000	2.71	126,000	2.96	136,000	3.21
36	109,000	2.49	120,000	2.75	131,000	3.00	142,000	3.25
37	114,000	2.53	125,000	2.78	136,000	3.03	148,000	3.28
38	119,000	2.55	130,000	2.81	142,000	3.06	153,000	3.32
39	123,000	2.58	135,000	2.84	147,000	3.09	159,000	3.35
40	128,000	2.61	140,000	2.87	153,000	3.12	165,000	3.37
41	133,000	2.64	145,000	2.89	158,000	3.15	171,000	3.40
42	137,000	2.66	151,000	2.91	164,000	3.17	177,000	3.43
43	142,000	2.68	156,000	2.94	169,000	3.20	182,000	3.45
44	147,000	2.71	161,000	2.96	174,000	3.22	188,000	3.48
45	152,000	2.73	166,000	2.98	180,000	3.24	194,000	3.50
46	156,000	2.75	171,000	3.00	185,000	3.26	200,000	3.52
47	161,000	2.77	176,000	3.03	191,000	3.28	206,000	3.54
48	166,000	2.79	181,000	3.04	196,000	3.30	212,000	3.56
49	170,000	2.80	186,000	3.06	202,000	3.32	218,000	3.58
50	175,000	2.82	191,000	3.08	207,000	3.34	223,000	3.60
51	180,000	2.84	196,000	3.10	213,000	3.36	229,000	3.62
52	185,000	2.85	202,000	3.11	218,000	3.37	235,000	3.63
53	190,000	2.87	207,000	3.13	224,000	3.39	241,000	3.65
54	194,000	2.88	212,000	3.14	229,000	3.41	247,000	3.67
55	199,000	2.90	217,000	3.16	235,000	3.42	253,000	3.68
56	204,000	2.91	222,000	3.17	240,000	3.43	259,000	3.70
57	209,000	2.92	227,000	3.19	246,000	3.45	265,000	3.71
58	213,000	2.93	232,000	3.20	252,000	3.46	271,000	3.72
59	218,000	2.95	238,000	3.21	257,000	3.47	277,000	3.74
60	223,000	2.96	243,000	3.22	263,000	3.49	282,000	3.75

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

8-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
22	.....	.....	.....	.....	.....	.....	63,500	2.47
23	.....	.....	.....	.....	62,800	2.33	69,200	2.57
24	.....	.....	61,400	2.17	68,100	2.42	74,900	2.67
25	59,300	2.00	66,400	2.25	73,500	2.50	80,700	2.75
26	63,900	2.07	71,500	2.32	79,000	2.58	86,500	2.83
27	68,700	2.13	76,600	2.39	84,500	2.65	92,400	2.90
28	73,400	2.20	81,700	2.46	90,000	2.71	98,300	2.97
29	78,200	2.26	86,900	2.52	95,600	2.78	104,000	3.03
30	83,000	2.31	92,100	2.57	101,000	2.83	110,000	3.09
31	87,900	2.36	97,300	2.63	107,000	2.89	116,000	3.15
32	92,700	2.41	103,000	2.67	112,000	2.94	122,000	3.20
33	97,600	2.46	108,000	2.72	118,000	2.98	128,000	3.25
34	103,000	2.50	113,000	2.76	124,000	3.03	134,000	3.29
35	107,000	2.54	118,000	2.81	130,000	3.07	141,000	3.34
36	112,000	2.58	124,000	2.84	135,000	3.11	147,000	3.38
37	117,000	2.61	129,000	2.88	141,000	3.15	153,000	3.42
38	122,000	2.65	134,000	2.92	147,000	3.18	159,000	3.45
39	127,000	2.68	140,000	2.95	152,000	3.22	165,000	3.48
40	132,000	2.71	145,000	2.98	158,000	3.25	171,000	3.52
41	137,000	2.74	151,000	3.01	164,000	3.28	177,000	3.55
42	142,000	2.77	156,000	3.04	170,000	3.31	184,000	3.58
43	147,000	2.79	161,000	3.06	176,000	3.34	190,000	3.61
44	152,000	2.82	167,000	3.09	181,000	3.36	196,000	3.64
45	157,000	2.84	172,000	3.12	187,000	3.39	202,000	3.66
46	162,000	2.86	178,000	3.14	193,000	3.41	208,000	3.69
47	167,000	2.89	183,000	3.16	199,000	3.44	215,000	3.71
48	172,000	2.91	189,000	3.18	205,000	3.46	221,000	3.73
49	177,000	2.93	194,000	3.20	211,000	3.48	227,000	3.76
50	183,000	2.95	199,000	3.22	216,000	3.50	233,000	3.78
51	188,000	2.97	205,000	3.24	222,000	3.52	240,000	3.80
52	193,000	2.98	210,000	3.26	228,000	3.54	246,000	3.81
53	198,000	3.00	216,000	3.28	234,000	3.56	252,000	3.83
54	203,000	3.02	221,000	3.30	240,000	3.57	258,000	3.85
55	208,000	3.04	227,000	3.31	246,000	3.59	265,000	3.87
56	213,000	3.05	232,000	3.33	252,000	3.61	271,000	3.89
57	218,000	3.07	238,000	3.34	258,000	3.62	277,000	3.90
58	223,000	3.08	243,000	3.36	263,000	3.64	284,000	3.92
59	228,000	3.09	249,000	3.37	269,000	3.65	290,000	3.93
60	233,000	3.11	254,000	3.39	275,000	3.67	296,000	3.95

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 16{,}000$ $n = 12$

9-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
24	.....	.....	.....	.....	.....	.....	75,600	2.70
25	.....	.....	.....	.....	74,300	2.53	81,900	2.81
26	.....	.....	.....	.....	80,200	2.63	88,300	2.91
27	.....	.....	77,700	2.44	86,200	2.72	94,800	3.00
28	74,400	2.24	83,300	2.52	92,300	2.80	101,000	3.09
29	79,600	2.31	89,000	2.59	98,500	2.88	108,000	3.17
30	84,900	2.38	94,800	2.67	105,000	2.95	114,000	3.24
31	90,200	2.44	101,000	2.73	111,000	3.02	121,000	3.31
32	95,600	2.50	106,000	2.80	117,000	3.09	128,000	3.37
33	101,000	2.56	112,000	2.85	123,000	3.14	135,000	3.43
34	106,000	2.62	118,000	2.91	130,000	3.20	141,000	3.49
35	112,000	2.67	124,000	2.96	136,000	3.25	148,000	3.55
36	117,000	2.71	130,000	3.01	142,000	3.30	155,000	3.60
37	123,000	2.76	136,000	3.06	149,000	3.35	162,000	3.65
38	128,000	2.80	142,000	3.10	155,000	3.40	168,000	3.69
39	134,000	2.84	148,000	3.14	161,000	3.44	175,000	3.74
40	139,000	2.88	154,000	3.18	168,000	3.48	182,000	3.78
41	145,000	2.92	160,000	3.22	174,000	3.52	189,000	3.82
42	151,000	2.95	166,000	3.25	181,000	3.56	196,000	3.86
43	156,000	2.99	172,000	3.29	187,000	3.59	203,000	3.89
44	162,000	3.02	178,000	3.32	194,000	3.62	210,000	3.93
45	167,000	3.05	184,000	3.35	200,000	3.66	217,000	3.96
46	173,000	3.08	190,000	3.38	207,000	3.69	224,000	3.99
47	179,000	3.11	196,000	3.41	213,000	3.72	231,000	4.02
48	184,000	3.14	202,000	3.44	220,000	3.74	238,000	4.05
49	190,000	3.16	208,000	3.47	226,000	3.77	245,000	4.08
50	195,000	3.18	214,000	3.49	233,000	3.80	252,000	4.10
51	201,000	3.21	220,000	3.51	239,000	3.82	259,000	4.13
52	207,000	3.23	226,000	3.54	246,000	3.85	266,000	4.15
53	212,000	3.25	233,000	3.56	253,000	3.87	273,000	4.18
54	218,000	3.27	239,000	3.58	259,000	3.89	280,000	4.20
55	224,000	3.29	245,000	3.60	266,000	3.91	287,000	4.22
56	230,000	3.31	251,000	3.62	272,000	3.93	294,000	4.24
57	235,000	3.33	257,000	3.64	279,000	3.95	301,000	4.26
58	241,000	3.35	263,000	3.66	286,000	3.97	308,000	4.28
59	247,000	3.37	269,000	3.68	292,000	3.99	315,000	4.30
60	252,000	3.38	276,000	3.70	299,000	4.01	322,000	4.32

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

2-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
5	.....	.....	.....	.....	.....	.....	3,470	0.53
6	3,620	0.46	4,040	0.51	4,470	0.57	4,890	0.62
7	4,800	0.51	5,320	0.57	5,840	0.63	6,360	0.69
8	6,020	0.56	6,630	0.62	7,250	0.67	7,870	0.73
9	7,250	0.59	7,960	0.65	8,680	0.71	9,390	0.77
10	8,490	0.62	9,310	0.68	10,120	0.74	10,930	0.80
11	9,750	0.64	10,660	0.70	11,570	0.76	12,480	0.82
12	11,010	0.66	12,020	0.72	13,020	0.78	14,050	0.84
13	12,280	0.68	13,400	0.74	14,500	0.80	15,600	0.86
14	13,550	0.69	14,760	0.75	16,000	0.81	17,200	0.88
15	14,830	0.70	16,100	0.76	17,400	0.83	18,800	0.89
16	16,100	0.71	17,500	0.77	18,900	0.84	20,300	0.90
17	17,400	0.72	18,900	0.78	20,400	0.85	21,900	0.91
18	18,700	0.73	20,300	0.79	21,900	0.86	23,500	0.92
19	20,000	0.74	21,700	0.80	23,400	0.86	25,100	0.93
20	21,200	0.74	23,100	0.81	24,900	0.87	26,700	0.93
21	22,500	0.75	24,400	0.81	26,300	0.88	28,300	0.94
22	23,800	0.75	25,800	0.82	27,800	0.88	29,800	0.95
23	25,100	0.76	27,200	0.82	29,300	0.89	31,400	0.95
24	26,400	0.76	28,600	0.83	30,800	0.89	33,000	0.96

2½-Inch Slab

7	.....	.....	5,540	0.60	6,140	0.67	6,740	0.74
8	6,390	0.60	7,110	0.67	7,830	0.74	8,550	0.81
9	7,880	0.66	8,720	0.73	9,570	0.80	10,410	0.87
10	9,400	0.70	10,360	0.77	11,330	0.84	12,290	0.92
11	10,940	0.73	12,020	0.81	13,110	0.88	14,200	0.95
12	12,490	0.76	13,700	0.84	14,910	0.91	16,100	0.99
13	14,050	0.79	15,400	0.86	16,700	0.94	18,100	1.01
14	15,600	0.81	17,100	0.88	18,500	0.96	20,000	1.04
15	17,200	0.83	18,800	0.90	20,300	0.98	21,900	1.06
16	18,800	0.84	20,500	0.92	22,200	1.00	23,900	1.07
17	20,400	0.86	22,200	0.93	24,000	1.01	25,900	1.09
18	22,000	0.87	23,900	0.95	25,900	1.02	27,800	1.10
19	23,600	0.88	25,600	0.96	27,700	1.04	29,800	1.11
20	25,200	0.89	27,400	0.97	29,600	1.05	31,800	1.12
21	26,800	0.90	29,100	0.98	31,400	1.06	33,700	1.13
22	28,400	0.91	30,800	0.99	33,300	1.06	35,700	1.14
23	30,000	0.92	32,600	0.99	35,100	1.07	37,700	1.15
24	31,700	0.92	34,300	1.00	37,000	1.08	39,700	1.16

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

3-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
8	.....	.....	.....	.....	8,040	0.77	8,850	0.85
9	8,150	0.68	9,100	0.77	10,050	0.85	11,000	0.93
10	9,910	0.74	11,010	0.83	12,100	0.91	13,180	1.00
11	11,720	0.80	12,930	0.88	14,190	0.97	15,400	1.05
12	13,540	0.84	14,920	0.93	16,300	1.01	17,700	1.10
13	15,400	0.87	16,900	0.96	18,500	1.05	20,000	1.14
14	17,200	0.90	18,900	0.99	20,600	1.08	22,300	1.17
15	19,100	0.93	20,900	1.02	22,800	1.11	24,600	1.20
16	21,000	0.95	23,000	1.04	24,900	1.13	26,900	1.22
17	22,900	0.97	25,000	1.06	27,100	1.16	29,300	1.25
18	24,800	0.99	27,100	1.08	29,300	1.18	31,600	1.27
19	26,700	1.01	29,100	1.10	31,500	1.19	33,900	1.28
20	28,600	1.02	31,200	1.12	33,700	1.21	36,300	1.30
21	30,500	1.04	33,200	1.13	35,900	1.22	38,700	1.31
22	32,400	1.05	35,300	1.14	38,200	1.23	41,100	1.33
23	34,300	1.06	37,300	1.15	40,400	1.25	43,400	1.34
24	36,200	1.07	39,400	1.16	42,600	1.26	45,800	1.35
25	38,200	1.08	41,500	1.17	44,800	1.27	48,100	1.36
26	40,100	1.09	43,600	1.18	47,000	1.28	50,500	1.37
27	42,000	1.09	45,600	1.19	49,200	1.28	52,900	1.38
28	43,900	1.10	47,700	1.20	51,500	1.29	55,200	1.39
29	45,800	1.11	49,800	1.20	53,700	1.30	57,600	1.39
30	47,800	1.11	51,900	1.21	55,900	1.30	60,000	1.40
31	49,700	1.12	53,900	1.22	58,200	1.31	62,400	1.41
32	51,700	1.12	56,000	1.22	60,400	1.31	64,800	1.41
33	53,600	1.13	58,100	1.23	62,600	1.32	67,100	1.42
34	55,500	1.14	60,200	1.23	64,900	1.33	69,500	1.42
35	57,500	1.14	62,300	1.23	67,100	1.33	71,900	1.43
36	59,500	1.15	64,400	1.24	69,300	1.34	74,300	1.43

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

3½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
9	.....	.....	.....	.....	.....	.....	11,230	0.96
10	10,080	0.76	11,290	0.86	12,500	0.95	13,710	1.05
11	12,120	0.83	13,490	0.93	14,870	1.03	16,200	1.12
12	14,190	0.89	15,700	0.99	17,300	1.09	18,800	1.19
13	16,300	0.94	18,000	1.04	19,700	1.14	21,400	1.24
14	18,400	0.98	20,300	1.08	22,200	1.18	24,100	1.28
15	20,600	1.01	22,600	1.12	24,700	1.22	26,800	1.32
16	22,700	1.04	25,000	1.15	27,200	1.25	29,400	1.36
17	24,900	1.07	27,300	1.18	29,700	1.28	32,100	1.39
18	27,100	1.10	29,700	1.20	32,300	1.31	34,800	1.41
19	29,300	1.12	32,100	1.23	34,800	1.33	37,600	1.44
20	31,500	1.14	34,400	1.25	37,400	1.35	40,300	1.46
21	33,700	1.16	36,800	1.26	39,900	1.37	43,000	1.48
22	35,900	1.17	39,200	1.28	42,500	1.39	45,800	1.50
23	38,200	1.19	41,600	1.30	45,100	1.40	48,500	1.51
24	40,400	1.20	44,000	1.31	47,600	1.42	51,200	1.53
25	42,700	1.21	46,400	1.32	50,200	1.43	54,000	1.54
26	44,900	1.23	48,800	1.33	52,800	1.44	56,700	1.55
27	47,100	1.24	51,200	1.35	55,400	1.45	59,500	1.56
28	49,300	1.25	53,600	1.36	58,000	1.47	62,300	1.57
29	51,600	1.26	56,100	1.37	60,600	1.48	65,000	1.58
30	53,800	1.27	58,500	1.38	63,200	1.49	67,800	1.59
31	56,100	1.27	60,900	1.38	65,700	1.49	70,600	1.60
32	58,300	1.28	63,300	1.39	68,300	1.50	73,400	1.61
33	60,600	1.29	65,800	1.40	70,900	1.51	76,100	1.62
34	62,800	1.29	68,200	1.40	73,500	1.52	78,900	1.63
35	65,100	1.30	70,600	1.41	76,100	1.52	81,700	1.63
36	67,300	1.31	73,000	1.42	78,700	1.53	84,400	1.64

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

4-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
10	.....	.....	.....	.....	.....	.....	13,870	1.07
11	.....	.....	13,680	0.95	15,200	1.05	16,700	1.16
12	14,490	0.91	16,200	1.02	17,900	1.13	19,600	1.24
13	16,800	0.97	18,700	1.09	20,600	1.20	22,500	1.31
14	19,200	1.03	21,300	1.14	23,400	1.26	25,400	1.37
15	21,600	1.08	23,900	1.19	26,200	1.31	28,400	1.42
16	24,100	1.12	26,500	1.23	29,000	1.35	31,500	1.47
17	26,500	1.15	29,200	1.27	31,800	1.39	34,500	1.51
18	29,000	1.19	31,800	1.30	34,700	1.42	37,600	1.54
19	31,500	1.21	34,500	1.33	37,600	1.45	40,600	1.57
20	34,000	1.24	37,200	1.36	40,500	1.48	43,700	1.60
21	36,500	1.26	39,900	1.38	43,400	1.50	46,800	1.63
22	39,000	1.28	42,600	1.41	46,300	1.53	49,900	1.65
23	41,500	1.30	45,400	1.43	49,200	1.55	53,100	1.67
24	44,000	1.32	48,100	1.44	52,100	1.57	56,200	1.69
25	46,600	1.34	50,800	1.46	55,100	1.58	59,300	1.71
26	49,100	1.35	53,600	1.48	58,000	1.60	62,500	1.72
27	51,600	1.37	56,300	1.49	60,900	1.61	65,600	1.74
28	54,200	1.38	59,100	1.50	63,900	1.63	68,700	1.75
29	56,800	1.39	61,800	1.52	66,800	1.64	71,900	1.77
30	59,300	1.40	64,500	1.53	69,800	1.65	75,000	1.78
31	61,900	1.41	67,300	1.54	72,700	1.66	78,200	1.79
32	64,400	1.42	70,100	1.55	75,700	1.67	81,300	1.80
33	67,000	1.43	72,800	1.56	78,700	1.68	84,500	1.81
34	69,500	1.44	75,600	1.57	81,600	1.69	87,600	1.82
35	72,100	1.45	78,400	1.58	84,600	1.70	90,800	1.83
36	74,700	1.46	81,100	1.59	87,500	1.71	94,000	1.84
37	77,300	1.47	83,900	1.59	90,500	1.72	97,100	1.84
38	79,900	1.47	86,700	1.60	93,500	1.73	100,000	1.85
39	82,400	1.48	89,500	1.61	96,500	1.73	104,000	1.86
40	85,000	1.49	92,200	1.61	99,400	1.74	107,000	1.87
41	87,600	1.49	95,000	1.62	102,000	1.75	110,000	1.87
42	90,100	1.50	97,800	1.63	105,000	1.75	114,000	1.88

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

4½-Inch Slab

Depth in inches	$f_c = 650$		$f_c = 700$		$f_c = 750$		$f_c = 800$	
	Moment	Area	Moment	Area	Moment	Area	Moment	Area
12	.....	.....	.....	.....	18,100	1.15	19,900	1.27
13	17,000	0.99	19,100	1.11	21,100	1.24	23,100	1.36
14	19,700	1.06	21,900	1.18	24,100	1.31	26,400	1.44
15	22,300	1.12	24,800	1.25	27,200	1.37	29,700	1.50
16	25,000	1.17	27,700	1.30	30,400	1.43	33,000	1.56
17	27,700	1.22	30,600	1.35	33,500	1.48	36,400	1.61
18	30,500	1.26	33,600	1.39	36,700	1.52	39,800	1.65
19	33,200	1.29	36,600	1.42	39,900	1.56	43,200	1.69
20	36,000	1.33	39,600	1.46	43,100	1.59	46,700	1.72
21	38,800	1.36	42,600	1.49	46,400	1.62	50,100	1.76
22	41,600	1.38	45,600	1.52	49,600	1.65	53,600	1.79
23	44,400	1.41	48,600	1.54	52,900	1.68	57,100	1.81
24	47,200	1.43	51,700	1.57	56,100	1.70	60,600	1.84
25	50,100	1.45	54,700	1.59	59,400	1.72	64,100	1.86
26	52,900	1.47	57,800	1.61	62,700	1.74	67,600	1.88
27	55,700	1.49	60,900	1.63	65,900	1.76	71,100	1.90
28	58,600	1.50	63,900	1.64	69,300	1.78	74,600	1.92
29	61,500	1.52	67,000	1.66	72,600	1.80	78,200	1.93
30	64,300	1.53	70,100	1.67	75,900	1.81	81,700	1.95
31	67,200	1.55	73,200	1.69	79,200	1.82	85,200	1.96
32	70,000	1.56	76,300	1.70	82,500	1.84	88,700	1.98
33	72,900	1.57	79,400	1.71	85,900	1.85	92,300	1.99
34	75,800	1.58	82,500	1.72	89,200	1.86	95,900	2.00
35	78,700	1.59	85,600	1.73	92,500	1.87	99,400	2.01
36	81,500	1.60	88,700	1.74	95,800	1.88	103,000	2.02
37	84,400	1.61	91,800	1.75	99,100	1.89	106,000	2.03
38	87,300	1.62	94,900	1.76	102,000	1.90	110,000	2.04
39	90,200	1.63	98,000	1.77	106,000	1.91	114,000	2.05
40	93,100	1.64	101,000	1.78	109,000	1.92	117,000	2.06
41	96,000	1.65	104,000	1.79	113,000	1.93	121,000	2.07
42	98,800	1.65	107,000	1.79	116,000	1.94	124,000	2.08

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

5-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
13	.....	.....	.....	.....	21,200	1.25	23,400	1.38
14	.....	.....	22,200	1.20	24,600	1.34	27,000	1.48
15	22,600	1.14	25,300	1.28	27,900	1.42	30,600	1.56
16	25,600	1.20	28,400	1.34	31,300	1.48	34,200	1.63
17	28,500	1.26	31,600	1.40	34,800	1.54	37,900	1.69
18	31,500	1.31	34,900	1.45	38,300	1.60	41,600	1.74
19	34,600	1.36	38,200	1.50	41,800	1.64	45,400	1.79
20	37,600	1.40	41,500	1.54	45,300	1.69	49,200	1.83
21	40,700	1.43	44,800	1.58	48,900	1.73	53,000	1.87
22	43,800	1.47	48,100	1.61	52,400	1.76	56,800	1.91
23	46,900	1.50	51,400	1.64	56,000	1.79	60,600	1.94
24	50,000	1.52	54,800	1.67	59,600	1.82	64,500	1.97
25	53,100	1.55	58,200	1.70	63,200	1.85	68,300	2.00
26	56,200	1.57	61,600	1.72	66,900	1.88	72,200	2.03
27	59,400	1.60	64,900	1.75	70,500	1.90	76,100	2.05
28	62,500	1.62	68,300	1.77	74,200	1.92	80,000	2.07
29	65,700	1.63	71,700	1.79	77,800	1.94	83,900	2.09
30	68,800	1.65	75,100	1.81	81,400	1.96	87,800	2.11
31	72,000	1.67	78,600	1.82	85,100	1.98	91,700	2.13
32	75,200	1.68	82,000	1.84	88,800	1.99	95,600	2.15
33	78,300	1.70	85,400	1.85	92,500	2.01	99,500	2.16
34	81,500	1.71	88,800	1.87	96,200	2.02	103,000	2.18
35	84,700	1.73	92,300	1.88	99,800	2.04	107,000	2.19
36	87,900	1.74	95,700	1.89	104,000	2.05	111,000	2.20
37	91,100	1.75	99,100	1.91	107,000	2.06	115,000	2.22
38	94,300	1.76	103,000	1.92	111,000	2.07	119,000	2.23
39	97,500	1.77	106,000	1.93	115,000	2.08	123,000	2.24
40	101,000	1.78	109,000	1.94	118,000	2.09	127,000	2.25
41	104,000	1.79	113,000	1.95	122,000	2.10	131,000	2.26
42	107,000	1.80	116,000	1.96	126,000	2.11	135,000	2.27
43	110,000	1.81	120,000	1.97	129,000	2.12	139,000	2.28
44	113,000	1.82	123,000	1.97	133,000	2.13	143,000	2.29
45	117,000	1.82	127,000	1.98	137,000	2.14	147,000	2.30
46	120,000	1.83	130,000	1.99	141,000	2.15	151,000	2.30
47	123,000	1.84	134,000	2.00	144,000	2.15	155,000	2.31
48	127,000	1.85	137,000	2.00	148,000	2.16	159,000	2.32

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

5½-Inch Slab

Depth in inches	$f_c = 650$		$f_c = 700$		$f_c = 750$		$f_c = 800$	
	Moment	Area	Moment	Area	Moment	Area	Moment	Area
14	.....	.....	.....	.....	.....	.....	27,200	1.49
15	.....	.....	25,400	1.29	28,200	1.44	31,000	1.59
16	25,800	1.22	28,900	1.37	31,900	1.52	35,000	1.67
17	29,000	1.29	32,300	1.44	35,600	1.59	39,000	1.75
18	32,200	1.35	35,800	1.50	39,400	1.66	43,000	1.81
19	35,500	1.40	39,400	1.56	43,200	1.72	47,100	1.87
20	38,800	1.45	42,900	1.61	47,100	1.77	51,200	1.93
21	42,100	1.50	46,500	1.65	50,900	1.81	55,300	1.97
22	45,500	1.54	50,200	1.69	54,800	1.86	59,500	2.02
23	48,900	1.57	53,800	1.73	58,700	1.90	63,700	2.06
24	52,300	1.61	57,500	1.77	62,700	1.93	67,900	2.09
25	55,700	1.64	61,100	1.80	66,600	1.96	72,100	2.13
26	59,100	1.67	64,800	1.83	70,600	1.99	76,300	2.16
27	62,500	1.69	68,500	1.86	74,500	2.02	80,600	2.19
28	65,900	1.72	72,200	1.88	78,500	2.05	84,800	2.21
29	69,400	1.74	76,000	1.91	82,500	2.07	89,100	2.24
30	2,800	1.76	79,700	1.93	86,500	2.09	93,300	2.26
31	76,300	1.78	83,400	1.95	90,500	2.12	97,600	2.28
32	79,800	1.80	87,200	1.97	94,500	2.14	102,000	2.30
33	83,300	1.82	90,900	1.99	98,500	2.15	106,000	2.32
34	86,800	1.84	94,700	2.00	103,000	2.17	111,000	2.34
35	90,200	1.85	98,400	2.02	107,000	2.19	115,000	2.36
36	93.700	1.87	102,000	2.03	111,000	2.20	119,000	2.37
37	97,300	1.88	106,000	2.05	115,000	2.22	123,000	2.39
38	101,000	1.89	110,000	2.06	119,000	2.23	128,000	2.40
39	104,000	1.90	114,000	2.08	123,000	2.25	132,000	2.42
40	108,000	1.92	117,000	2.09	127,000	2.26	136,000	2.43
41	111,000	1.93	121,000	2.10	131,000	2.27	141,000	2.44
42	115,000	1.94	125,000	2.11	135,000	2.28	145,000	2.45
43	118,000	1.95	129,000	2.12	139,000	2.29	149,000	2.46
44	122,000	1.96	132,000	2.13	143,000	2.30	154,000	2.47
45	125,000	1.97	136,000	2.14	147,000	2.31	158,000	2.48
46	129,000	1.98	140,000	2.15	151,000	2.32	162,000	2.49
47	132,000	1.99	144,000	2.16	155,000	2.33	167,000	2.50
48	136,000	1.99	148,000	2.17	159,000	2.34	171,000	2.51

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

6-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
15	.....	.....	.....	.....	.....	.....	31,200	1.60
16	.....	.....	.....	.....	32,200	1.54	35,400	1.70
17	.....	.....	32,600	1.46	36,200	1.62	39,700	1.79
18	32,600	1.37	36,400	1.53	40,200	1.70	44,000	1.87
19	36,100	1.43	40,200	1.60	44,200	1.77	48,400	1.94
20	39,700	1.49	44,000	1.66	48,400	1.83	52,700	2.00
21	43,200	1.54	47,900	1.71	52,600	1.89	57,200	2.06
22	46,900	1.59	51,700	1.76	56,800	1.94	61,700	2.11
23	50,500	1.63	55,700	1.81	61,000	1.98	66,300	2.16
24	54,200	1.67	59,700	1.85	65,200	2.02	70,800	2.20
25	57,800	1.71	63,700	1.89	69,500	2.06	75,400	2.24
26	61,500	1.75	67,700	1.92	73,800	2.10	79,900	2.28
27	65,200	1.78	71,700	1.96	78,100	2.13	84,500	2.31
28	69,000	1.81	75,700	1.99	82,400	2.16	89,100	2.34
29	72,700	1.83	79,700	2.01	86,700	2.19	93,800	2.37
30	76,400	1.86	83,800	2.04	91,100	2.22	98,400	2.40
31	80,200	1.88	87,800	2.06	95,400	2.24	103,000	2.43
32	84,000	1.91	91,900	2.09	99,800	2.27	108,000	2.45
33	87,700	1.93	95,900	2.11	104,000	2.29	112,000	2.47
34	91,500	1.95	100,000	2.13	109,000	2.31	117,000	2.49
35	95,300	1.97	104,000	2.15	113,000	2.33	122,000	2.51
36	99,100	1.98	108,000	2.17	117,000	2.35	126,000	2.53
37	103,000	2.00	112,000	2.18	122,000	2.37	131,000	2.55
38	107,000	2.02	116,000	2.20	126,000	2.38	136,000	2.57
39	110,000	2.03	121,000	2.22	130,000	2.40	141,000	2.58
40	114,000	2.04	125,000	2.23	135,000	2.41	145,000	2.60
41	118,000	2.06	129,000	2.24	139,000	2.43	150,000	2.61
42	122,000	2.07	133,000	2.26	144,000	2.44	155,000	2.63
43	126,000	2.08	137,000	2.27	148,000	2.46	159,000	2.64
44	130,000	2.10	141,000	2.28	153,000	2.47	164,000	2.66
45	133,000	2.11	145,000	2.29	157,000	2.48	169,000	2.67
46	137,000	2.12	149,000	2.30	161,000	2.49	173,000	2.68
47	141,000	2.13	154,000	2.32	166,000	2.50	178,000	2.69
48	145,000	2.14	158,000	2.33	170,000	2.51	183,000	2.70
49	149,000	2.15	162,000	2.34	175,000	2.52	188,000	2.71
50	153,000	2.16	166,000	2.34	179,000	2.53	192,000	2.72
51	156,000	2.16	170,000	2.35	184,000	2.54	197,000	2.73
52	160,000	2.17	174,000	2.36	188,000	2.55	202,000	2.74
53	164,000	2.18	178,000	2.37	193,000	2.56	207,000	2.75
54	168,000	2.19	183,000	2.38	197,000	2.57	211,000	2.76

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

6½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
17	.....	.....	.....	.....	36,300	1.64	40,000	1.81
18	.....	.....	36,600	1.55	40,700	1.72	44,600	1.90
19	36,400	1.45	40,700	1.62	45,000	1.80	49,300	1.98
20	40,200	1.51	44,800	1.70	49,400	1.88	54,000	2.06
21	44,000	1.57	48,900	1.76	53,800	1.94	58,800	2.13
22	47,800	1.63	53,100	1.82	58,300	2.00	63,600	2.19
23	51,700	1.68	57,300	1.87	62,800	2.06	68,400	2.24
24	55,600	1.73	61,500	1.92	67,400	2.11	73,300	2.29
25	59,600	1.77	65,800	1.96	72,000	2.15	78,200	2.34
26	63,600	1.81	70,100	2.00	76,600	2.19	83,100	2.38
27	67,500	1.85	74,400	2.04	81,200	2.23	88,000	2.42
28	71,500	1.89	78,700	2.08	85,800	2.27	93,000	2.46
29	75,500	1.92	83,000	2.11	90,500	2.30	98,000	2.49
30	79,600	1.95	87,400	2.14	95,200	2.33	103,000	2.53
31	83,600	1.98	91,700	2.17	100,000	2.36	108,000	2.56
32	87,700	2.00	96,100	2.20	105,000	2.39	113,000	2.59
33	91,700	2.03	100,000	2.22	109,000	2.42	118,000	2.61
34	95,800	2.05	105,000	2.25	114,000	2.44	123,000	2.64
35	99,900	2.07	109,000	2.27	119,000	2.47	128,000	2.66
36	104,000	2.09	114,000	2.29	123,000	2.49	133,000	2.68
37	108,000	2.11	118,000	2.31	128,000	2.51	138,000	2.71
38	112,000	2.13	123,000	2.33	133,000	2.53	143,000	2.73
39	116,000	2.15	127,000	2.35	138,000	2.55	148,000	2.74
40	120,000	2.17	131,000	2.36	142,000	2.56	153,000	2.76
41	124,000	2.18	136,000	2.38	147,000	2.58	158,000	2.78
42	129,000	2.20	140,000	2.40	152,000	2.60	164,000	2.80
43	133,000	2.21	145,000	2.41	157,000	2.61	169,000	2.81
44	137,000	2.22	149,000	2.43	162,000	2.63	174,000	2.82
45	141,000	2.24	154,000	2.44	166,000	2.64	179,000	2.84
46	145,000	2.25	158,000	2.45	171,000	2.65	184,000	2.85
47	149,000	2.26	163,000	2.46	176,000	2.67	189,000	2.87
48	154,000	2.27	167,000	2.48	181,000	2.68	194,000	2.88
49	158,000	2.29	172,000	2.49	186,000	2.69	199,000	2.89
50	162,000	2.30	176,000	2.50	190,000	2.70	205,000	2.90
51	166,000	2.31	181,000	2.51	195,000	2.71	210,000	2.91
52	170,000	2.32	185,000	2.52	200,000	2.72	215,000	2.92
53	174,000	2.33	189,000	2.53	205,000	2.73	220,000	2.93
54	179,000	2.34	194,000	2.54	210,000	2.74	225,000	2.95

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

7-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
18	.....	.....	.....	.....	.....	.....	44,900	1.92
19	.....	.....	40,800	1.63	45,300	1.82	49,800	2.01
20	40,300	1.52	45,200	1.72	50,000	1.91	54,800	2.10
21	44,400	1.59	49,500	1.79	54,700	1.98	59,900	2.18
22	48,500	1.66	54,000	1.86	59,500	2.05	65,000	2.25
23	52,600	1.72	58,500	1.92	64,300	2.11	70,100	2.31
24	56,800	1.77	63,000	1.97	69,100	2.17	75,300	2.37
25	61,000	1.82	67,500	2.02	74,000	2.22	80,500	2.43
26	65,200	1.87	72,100	2.07	78,900	2.27	85,800	2.48
27	69,400	1.91	76,600	2.12	83,900	2.32	91,100	2.52
28	73,700	1.95	81,300	2.16	88,800	2.36	96,400	2.57
29	78,000	1.99	85,900	2.20	93,800	2.40	102,000	2.61
30	82,300	2.03	90,500	2.23	98,800	2.44	107,000	2.64
31	86,600	2.06	95,200	2.27	104,000	2.47	112,000	2.68
32	91,000	2.09	99,900	2.30	109,000	2.50	118,000	2.71
33	95,300	2.12	105,000	2.33	114,000	2.53	123,000	2.74
34	99,700	2.14	109,000	2.35	119,000	2.56	129,000	2.77
35	104,000	2.17	114,000	2.38	124,000	2.59	134,000	2.80
36	108,000	2.19	119,000	2.40	129,000	2.61	139,000	2.83
37	113,000	2.22	123,000	2.43	134,000	2.64	145,000	2.85
38	117,000	2.24	128,000	2.45	139,000	2.66	150,000	2.87
39	122,000	2.26	133,000	2.47	144,000	2.68	156,000	2.90
40	126,000	2.28	138,000	2.49	150,000	2.70	161,000	2.92
41	130,000	2.30	142,000	2.51	155,000	2.72	167,000	2.94
42	135,000	2.31	147,000	2.53	160,000	2.74	172,000	2.96
43	139,000	2.33	152,000	2.54	165,000	2.76	178,000	2.97
44	144,000	2.35	157,000	2.56	170,000	2.78	183,000	2.99
45	148,000	2.36	162,000	2.58	175,000	2.79	188,000	3.01
46	153,000	2.38	166,000	2.59	180,000	2.81	194,000	3.02
47	157,000	2.39	171,000	2.61	185,000	2.82	199,000	3.04
48	162,000	2.40	176,000	2.62	190,000	2.84	205,000	3.05
49	166,000	2.42	181,000	2.63	196,000	2.85	211,000	3.07
50	171,000	2.43	186,000	2.65	201,000	2.86	216,000	3.08
51	175,000	2.44	191,000	2.66	206,000	2.88	222,000	3.09
52	179,000	2.45	195,000	2.67	211,000	2.89	227,000	3.11
53	184,000	2.46	200,000	2.68	216,000	2.90	233,000	3.12
54	188,000	2.47	205,000	2.69	221,000	2.91	238,000	3.13
55	193,000	2.48	210,000	2.70	227,000	2.92	244,000	3.14
56	197,000	2.49	215,000	2.71	232,000	2.93	249,000	3.15
57	202,000	2.50	219,000	2.72	237,000	2.94	255,000	3.16
58	206,000	2.51	224,000	2.73	242,000	2.95	260,000	3.17
59	211,000	2.52	229,000	2.74	247,000	2.96	266,000	3.18
60	215,000	2.53	234,000	2.75	253,000	2.97	271,000	3.19

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

7½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
19	.....	.....	.....	.....	.....	.....	50,100	2.03
20	.....	.....	.....	.....	50,300	1.92	55,300	2.12
21	.....	.....	49,800	1.80	55,200	2.01	60,600	2.21
22	48,800	1.67	54,500	1.88	60,300	2.09	66,000	2.30
23	53,100	1.74	59,200	1.95	65,400	2.16	71,500	2.37
24	57,500	1.80	64,000	2.02	70,500	2.23	77,000	2.44
25	62,000	1.86	68,800	2.08	75,600	2.29	82,500	2.50
26	66,400	1.92	73,600	2.13	80,900	2.34	88,100	2.56
27	70,900	1.97	78,500	2.18	86,100	2.39	93,700	2.61
28	75,500	2.01	83,400	2.23	91,400	2.44	99,300	2.66
29	80,000	2.05	88,300	2.27	96,600	2.49	105,000	2.71
30	84,600	2.09	93,300	2.31	102,000	2.53	111,000	2.75
31	89,200	2.13	98,200	2.35	107,000	2.57	116,000	2.79
32	93,800	2.17	103,000	2.39	113,000	2.61	122,000	2.83
33	98,400	2.20	108,000	2.42	118,000	2.64	128,000	2.86
34	103,000	2.23	113,000	2.45	123,000	2.67	134,000	2.90
35	108,000	2.26	118,000	2.48	129,000	2.71	139,000	2.93
36	112,000	2.29	123,000	2.51	134,000	2.73	145,000	2.96
37	117,000	2.31	128,000	2.54	140,000	2.76	151,000	2.99
38	122,000	2.34	133,000	2.56	145,000	2.79	157,000	3.01
39	126,000	2.36	138,000	2.59	150,000	2.81	162,000	3.04
40	131,000	2.38	144,000	2.61	156,000	2.84	168,000	3.06
41	136,000	2.40	149,000	2.63	161,000	2.87	174,000	3.08
42	141,000	2.42	154,000	2.65	167,000	2.88	180,000	3.11
43	145,000	2.44	159,000	2.67	172,000	2.90	186,000	3.13
44	150,000	2.46	164,000	2.69	178,000	2.92	192,000	3.15
45	155,000	2.48	169,000	2.71	183,000	2.94	198,000	3.17
46	160,000	2.50	174,000	2.73	189,000	2.95	203,000	3.18
47	164,000	2.51	179,000	2.74	194,000	2.97	209.000	3.20
48	169,000	2.53	184,000	2.76	200,000	2.99	215,000	3.22
49	174,000	2.54	190,000	2.77	205,000	3.00	221,000	3.23
50	179,000	2.56	195,000	2.79	211,000	3.02	227,000	3.25
51	183,000	2.57	200,000	2.80	216,000	3.03	233,000	3.27
52	188,000	2.58	205,000	2.81	222,000	3.05	239,000	3.28
53	193,000	2.60	210,000	2.83	227,000	3.06	245,000	3.29
54	198,000	2.61	215,000	2.84	233,000	3.07	251,000	3.31
55	203,000	2.62	221,000	2.85	238,000	3.09	257,000	3.32
56	207,000	2.63	226,000	2.86	244,000	3.10	263,000	3.33
57	212,000	2.64	231,000	2.88	250,000	3.11	268,000	3.34
58	217,000	2.65	236,000	2.89	255,000	3.12	274,000	3.35
59	222,000	2.66	241,000	2.90	260,000	3.13	280,000	3.36
60	227,000	2.67	246,000	2.91	266,000	3.14	286,000	3.37

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

8-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
20	.....	.....	.....	.....	.....	.....	55,500	2.13
21	.....	.....	.....	.....	55,400	2.02	61,100	2.23
22	.....	.....	54,700	1.89	60,700	2.11	66,700	2.33
23	53,300	1.75	59,700	1.97	66,100	2.19	72,400	2.41
24	58,000	1.82	64,800	2.04	71,500	2.27	78,200	2.49
25	62,600	1.89	69,800	2.11	76,900	2.34	84,000	2.56
26	67,300	1.95	74,900	2.17	82,400	2.40	89,900	2.63
27	72,100	2.00	80,000	2.23	87,900	2.46	95,800	2.69
28	76,900	2.06	85,200	2.29	93,500	2.51	102,000	2.74
29	81,700	2.11	90,400	2.34	99,100	2.57	108,000	2.79
30	86,500	2.15	95,600	2.38	105,000	2.61	114,000	2.84
31	91,400	2.19	101,000	2.43	110,000	2.66	120,000	2.89
32	96,300	2.23	106,000	2.47	116,000	2.70	126,000	2.93
33	101,000	2.27	111,000	2.51	122,000	2.74	132,000	2.97
34	106,000	2.31	117,000	2.54	127,000	2.78	138,000	3.01
35	111,000	2.34	122,000	2.57	133,000	2.81	144,000	3.05
36	116,000	2.37	127,000	2.61	139,000	2.84	150,000	3.08
37	121,000	2.40	133,000	2.64	145,000	2.88	156,000	3.11
38	126,000	2.43	138,000	2.67	150,000	2.91	163,000	3.14
39	131,000	2.46	143,000	2.69	156,000	2.93	169,000	3.17
40	136,000	2.48	149,000	2.72	162,000	2.96	175,000	3.20
41	141,000	2.50	154,000	2.74	168,000	2.98	181,000	3.23
42	146,000	2.53	160,000	2.77	174,000	3.01	187,000	3.25
43	151,000	2.55	165,000	2.79	179,000	3.03	194,000	3.27
44	156,000	2.57	171,000	2.81	185,000	3.05	200,000	3.30
45	161,000	2.59	176,000	2.83	191,000	3.08	206,000	3.32
46	166,000	2.61	181,000	2.85	197,000	3.10	212,000	3.34
47	171,000	2.63	187,000	2.87	203,000	3.11	218,000	3.36
48	176,000	2.64	192,000	2.89	208,000	3.13	225,000	3.38
49	181,000	2.66	198,000	2.91	214,000	3.15	231,000	3.40
50	186,000	2.68	203,000	2.92	220,000	3.17	237,000	3.41
51	191,000	2.70	209,000	2.94	226,000	3.18	244,000	3.43
52	196,000	2.71	214,000	2.95	232,000	3.20	250,000	3.45
53	202,000	2.72	220,000	2.97	238,000	3.21	256,000	3.46
54	207,000	2.74	225,000	2.98	244,000	3.23	262,000	3.48
55	212,000	2.75	231,000	2.99	250,000	3.24	269,000	3.49
56	217,000	2.76	236,000	3.01	256,000	3.26	275,000	3.51
57	222,000	2.77	242,000	3.02	261,000	3.27	281,000	3.52
58	227,000	2.79	247,000	3.03	267,000	3.28	287,000	3.53
59	232,000	2.80	253,000	3.05	273,000	3.30	294,000	3.54
60	237,000	2.81	258,000	3.06	279,000	3.31	300,000	3.55

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 15$

9-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
23	.....	.....	.....	.....	.....	.....	73,300	2.45
24	.....	.....	.....	.....	72,400	2.31	79,600	2.55
25	.....	.....	70,700	2.15	78,300	2.39	86,000	2.64
26	68,100	1.98	76,300	2.23	84,400	2.48	92,500	2.72
27	73,300	2.05	81,900	2.30	90,400	2.55	99,000	2.80
28	78,600	2.12	87,600	2.37	96,600	2.62	106,000	2.87
29	83,900	2.18	93,300	2.43	103,000	2.68	112,000	2.94
30	89,200	2.23	99,100	2.49	109,000	2.75	119,000	3.00
31	94,600	2.29	105,000	2.55	115,000	2.80	125,000	3.06
32	100,000	2.34	111,000	2.60	121,000	2.85	132,000	3.11
33	105,000	2.39	116,000	2.65	128,000	2.90	139,000	3.16
34	111,000	2.43	122,000	2.69	134,000	2.95	146,000	3.21
35	116,000	2.47	128,000	2.73	140,000	3.00	152,000	3.26
36	122,000	2.51	134,000	2.77	147,000	3.04	159,000	3.30
37	127,000	2.55	140,000	2.81	153,000	3.08	166,000	3.34
38	133,000	2.59	146,000	2.85	160,000	3.11	173,000	3.38
39	138,000	2.62	152,000	2.88	166,000	3.15	180,000	3.42
40	144,000	2.65	158,000	2.92	172,000	3.18	187,000	3.45
41	150,000	2.68	164,000	2.95	179,000	3.22	194,000	3.48
42	155,000	2.71	170,000	2.98	185,000	3.25	201,000	3.51
43	161,000	2.74	176,000	3.01	192,000	3.28	207,000	3.54
44	166,000	2.76	182,000	3.03	198,000	3.30	214,000	3.57
45	172,000	2.79	188,000	3.06	205,000	3.33	221,000	3.60
46	178,000	2.81	195,000	3.09	211,000	3.36	228,000	3.63
47	183,000	2.84	201,000	3.11	218,000	3.38	235,000	3.65
48	189,000	2.86	207,000	3.13	225,000	3.40	242,000	3.67
49	195,000	2.88	213,000	3.15	231,000	3.43	249,000	3.70
50	200,000	2.90	219,000	3.17	238,000	3.45	256,000	3.72
51	206,000	2.92	225,000	3.19	244,000	3.47	263,000	3.74
52	212,000	2.94	231,000	3.21	251,000	3.49	270,000	3.76
53	217,000	2.96	237,000	3.23	257,000	3.51	277,000	3.78
54	223,000	2.98	243,000	3.25	264,000	3.53	284,000	3.80
55	229,000	2.99	250,000	3.27	270,000	3.54	291,000	3.82
56	234,000	3.01	256,000	3.28	277,000	3.56	298,000	3.84
57	240,000	3.02	262,000	3.30	284,000	3.58	306,000	3.85
58	246,000	3.04	268,000	3.32	290,000	3.60	313,000	3.87
59	251,000	3.05	274,000	3.33	297,000	3.61	320,000	3.88
60	257,000	3.06	280,000	3.35	304,000	3.62	327,000	3.90

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

2-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
6	.....	.....	.....	.....	4,000	0.50	4,420	0.56
7	4,320	0.46	4,840	0.51	5,360	0.57	5,880	0.63
8	5,520	0.51	6,130	0.57	6,750	0.62	7,370	0.68
9	6,740	0.55	7,450	0.61	8,170	0.67	8,880	0.73
10	7,970	0.58	8,790	0.64	9,600	0.70	10,410	0.76
11	9,220	0.61	10,130	0.67	11,050	0.73	11,960	0.79
12	10,480	0.63	11,490	0.69	12,500	0.75	13,510	0.81
13	11,740	0.65	12,850	0.71	13,960	0.77	15,100	0.83
14	13,010	0.66	14,220	0.72	15,400	0.79	16,600	0.85
15	14,280	0.68	15,600	0.74	16,900	0.80	18,200	0.86
16	15,600	0.69	17,000	0.75	18,400	0.81	19,800	0.87
17	16,800	0.70	18,400	0.76	19,900	0.82	21,400	0.89
18	18,100	0.71	19,700	0.77	21,300	0.83	22,900	0.90
19	19,400	0.72	21,100	0.78	22,800	0.84	24,500	0.91
20	20,700	0.72	22,500	0.79	24,300	0.85	26,100	0.91
21	22,000	0.73	23,900	0.79	25,800	0.86	27,700	0.92
22	23,300	0.74	25,300	0.80	27,300	0.86	29,300	0.92
23	24,500	0.74	26,700	0.81	28,700	0.87	30,900	0.93
24	25,800	0.75	28,000	0.81	30,200	0.87	32,500	0.94

2½-Inch Slab

8	.....	.....	6,370	0.59	7,090	0.66	7,810	0.73
9	7,120	0.59	7,960	0.66	8,800	0.73	9,640	0.80
10	8,620	0.64	9,580	0.71	10,540	0.78	11,510	0.85
11	10,140	0.68	11,230	0.75	12,320	0.82	12,400	0.90
12	11,680	0.71	12,890	0.78	14,100	0.86	15,300	0.93
13	13,240	0.74	14,570	0.81	15,900	0.89	17,200	0.96
14	14,800	0.76	16,300	0.84	17,700	0.92	19,200	0.99
15	16,400	0.78	18,000	0.86	19,500	0.94	21,100	1.01
16	18,000	0.80	19,700	0.88	21,400	0.96	23,100	1.03
17	19,500	0.82	21,400	0.90	23,200	0.97	25,000	1.05
18	21,100	0.83	23,100	0.91	25,000	0.99	27,000	1.07
19	22,700	0.85	24,800	0.93	26,900	1.00	28,900	1.08
20	24,300	0.86	26,500	0.94	28,700	1.02	30,900	1.09
21	25,900	0.87	28,200	0.95	30,500	1.03	32,900	1.10
22	27,500	0.88	30,000	0.96	32,400	1.04	34,800	1.11
23	29,100	0.89	31,700	0.97	34,300	1.05	36,800	1.12
24	30,700	0.90	33,400	0.98	36,100	1.06	38,800	1.13

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

3-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
9	.....	.....	.....	.....	9,000	0.75	9,950	0.83
10	8,840	0.65	9,930	0.74	11,030	0.83	12,120	0.91
11	10,610	0.71	11,850	0.80	13,210	0.89	14,360	0.97
12	12,410	0.76	13,800	0.85	15,200	0.94	16,600	1.02
13	14,200	0.80	15,800	0.89	17,300	0.98	18,800	1.07
14	16,100	0.84	17,800	0.93	19,400	1.02	21,100	1.11
15	17,900	0.87	19,800	0.96	21,600	1.05	23,400	1.14
16	19,800	0.90	21,800	0.99	23,800	1.08	25,700	1.17
17	21,700	0.92	23,800	1.01	25,900	1.10	28,100	1.19
18	23,600	0.94	25,900	1.03	28,100	1.12	30,400	1.22
19	25,500	0.96	27,900	1.05	30,300	1.14	32,700	1.24
20	27,400	0.98	29,900	1.07	32,500	1.16	35,100	1.25
21	29,300	0.99	32,000	1.09	34,700	1.18	37,400	1.27
22	31,200	1.01	34,100	1.10	36,900	1.19	39,800	1.29
23	33,100	1.02	36,100	1.11	39,100	1.21	42,100	1.30
24	35,000	1.03	38,200	1.12	41,300	1.22	44,500	1.31
25	36,900	1.04	40,200	1.14	43,600	1.23	46,900	1.32
26	38,800	1.05	42,300	1.15	45,800	1.24	49,300	1.33
27	40,800	1.06	44,400	1.16	48,000	1.25	51,600	1.34
28	42,700	1.07	46,500	1.16	50,200	1.26	54,000	1.35
29	44,600	1.08	48,500	1.17	52,400	1.27	56,300	1.36
30	46,500	1.09	50,600	1.18	54,700	1.28	58,700	1.37
31	48,500	1.09	52,700	1.19	56,900	1.28	61,100	1.38
32	50,400	1.10	54,800	1.19	59,100	1.29	63,500	1.38
33	52,300	1.10	56,900	1.20	61,400	1.30	65,900	1.39
34	54,300	1.11	59,000	1.21	63,600	1.30	68,300	1.40
35	56,200	1.12	61,000	1.21	65,800	1.31	70,600	1.40
36	58,100	1.12	63,100	1.22	68,100	1.31	73,000	1.41

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

3½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
11	.....	.....	12,050	0.82	13,420	0.91	14,800	1.01
12	12,710	0.79	14,260	0.88	15,800	0.98	17,400	1.08
13	14,790	0.84	16,500	0.94	18,200	1.04	20,000	1.14
14	16,900	0.89	18,800	0.99	20.700	1.09	22,600	1.20
15	19,000	0.93	21,100	1.03	23,100	1.14	25,200	1.24
16	21,200	0.97	23,400	1.07	25,600	1.17	27,900	1.28
17	23,300	1.00	25,700	1.10	28,100	1.21	30,500	1.31
18	25,500	1.03	28,100	1.13	30,700	1.24	33,200	1.34
19	27,700	1.05	30,400	1.16	33,200	1.27	35,900	1.37
20	29,900	1.08	32,800	1.18	35,700	1.29	38,700	1.40
21	32,100	1.10	35,200	1.20	38,300	1.31	41,400	1.42
22	34,300	1.12	37,600	1.22	40,800	1.33	44,100	1.44
23	36,500	1.14	40,000	1.24	43,400	1.35	46,800	1.46
24	38,800	1.15	42,300	1.26	46,000	1.37	49,600	1.48
25	41,000	1.17	44,700	1.27	48,500	1.38	52,300	1.49
26	43,200	1.18	47,100	1.29	51,100	1.40	55,100	1.51
27	45,400	1.19	49,500	1.30	53,700	1.41	57,800	1.52
28	47,600	1.20	52,000	1.31	56,300	1.42	60,600	1.53
29	49,900	1.21	54,400	1.32	58,900	1.43	63,400	1.54
30	52,100	1.22	56,800	1.33	61,500	1.44	66,100	1.55
31	54,400	1.23	59,200	1.34	64,000	1.45	68,900	1.56
32	56,600	1.24	61,600	1.35	66,600	1.46	71,700	1.57
33	58,900	1.25	64,000	1.36	69,200	1.47	74,400	1.58
34	61,100	1.26	66,400	1.37	71,800	1.48	77,200	1.59
35	63,400	1.27	68,900	1.38	74,400	1.49	80,000	1.60
36	65,600	1.27	71,300	1.38	77.000	1.49	82,700	1.61

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

4-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
12	.....	.....	.....	.....	16,000	1.00	17,700	1.11
13	.....	.....	16,800	0.96	18,700	1.08	20,600	1.19
14	17,300	0.91	19,400	1.03	21,400	1.14	23,500	1.26
15	19,700	0.97	21,900	1.08	24,200	1.20	26,500	1.32
16	22,100	1.02	24,500	1.13	27,000	1.25	29,500	1.37
17	24,500	1.06	27,200	1.18	29,800	1.29	32,500	1.41
18	26,900	1.10	29,800	1.22	32,700	1.33	35,500	1.45
19	29,400	1.13	32,500	1.25	35,500	1.37	38,600	1.49
20	31,900	1.16	35,100	1.28	38,400	1.40	41,700	1.52
21	34,400	1.19	37,800	1.31	41,300	1.43	44,700	1.55
22	36,900	1.21	40,500	1.33	44,200	1.45	47,800	1.58
23	39,400	1.23	43,200	1.36	47,100	1.48	50,900	1.60
24	41,900	1.25	46,000	1.38	50,000	1.50	54,100	1.62
25	44,400	1.27	48,700	1.40	52,900	1.52	57,200	1.64
26	47,000	1.29	51,400	1.42	55,800	1.54	60,300	1.66
27	49,500	1.31	54,100	1.43	58,800	1.56	63,400	1.68
28	52,000	1.32	56,900	1.45	61,700	1.57	66,600	1.70
29	54,600	1.34	59,600	1.46	64,600	1.59	69,700	1.71
30	57,100	1.35	62,400	1.48	67,600	1.60	72,800	1.72
31	59,700	1.36	65,100	1.49	70,500	1.61	76,000	1.74
32	62,200	1.38	67,900	1.50	73,500	1.63	79,100	1.75
33	64,800	1.39	70,600	1.51	76,400	1.64	82,300	1.76
34	67,300	1.40	73,400	1.52	79,400	1.65	85,400	1.77
35	69,900	1.41	76,100	1.53	82,400	1.66	88,600	1.78
36	72,500	1.41	78,900	1.54	85,300	1.67	91,800	1.79
37	75,000	1.42	81,700	1.55	88,300	1.68	94,900	1.80
38	77,600	1.43	84,500	1.56	91,300	1.68	98,100	1.81
39	80,200	1.44	87,200	1.57	94,300	1.69	101,000	1.82
40	82,700	1.45	90,000	1.57	97,200	1.70	104,000	1.83
41	85,300	1.45	92,700	1.58	100,000	1.71	108,000	1.83
42	87,900	1.46	95,500	1.59	103,000	1.71	111,000	1.84

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

4½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
13	.....	.....	.....	.....	.....	.....	20,800	1.21
14	.....	.....	.....	.....	21,800	1.17	24,000	1.29
15	19,900	0.98	22,300	1.11	24,800	1.24	27,300	1.36
16	22,500	1.04	25,200	1.17	27,900	1.30	30,600	1.43
17	25,200	1.10	28,100	1.23	31,000	1.36	33,900	1.49
18	27,900	1.14	31,100	1.28	34,200	1.41	37,300	1.54
19	30,700	1.18	34,000	1.32	37,300	1.45	40,700	1.58
20	33,400	1.22	37,000	1.36	40,500	1.49	44,100	1.62
21	36,200	1.26	40,000	1.39	43,800	1.53	47,500	1.66
22	39,000	1.29	43,000	1.42	47,000	1.56	51,000	1.69
23	41,800	1.32	46,000	1.45	50,200	1.59	54,500	1.73
24	44,600	1.35	49,100	1.48	53,500	1.62	57,900	1.75
25	47,400	1.37	52,100	1.51	56,700	1.64	61,400	1.78
26	50,200	1.39	55,100	1.53	60,000	1.67	64,900	1.80
27	53,000	1.41	58,200	1.55	63,300	1.69	68,400	1.83
28	55,900	1.43	61,200	1.57	66,600	1.71	71,900	1.85
29	58,700	1.45	64,300	1.59	69,900	1.73	75,400	1.86
30	61,600	1.47	67,400	1.60	73,200	1.74	78,900	1.88
31	64,400	1.48	70,500	1.62	76,500	1.76	82,500	1.90
32	67,300	1.50	73,500	1.64	79,800	1.78	86,000	1.91
33	70,200	1.51	76,600	1.65	83,100	1.79	89,600	1.93
34	73,000	1.52	79,700	1.66	86,400	1.80	93,100	1.94
35	75,900	1.54	82,800	1.68	89,700	1.82	96,600	1.96
36	78,800	1.55	85,900	1.69	93,000	1.83	100,000	7.97
37	81,600	1.56	89,000	1.70	96,300	1.84	104,000	1.98
38	84,500	1.57	92,100	1.71	99,700	1.85	107,000	1.99
39	87,400	1.58	95,200	1.72	103,000	1.86	111,000	2.00
40	90,300	1.59	98,300	1.73	106,000	1.87	114,000	2.01
41	93,200	1.60	101,000	1.74	110,000	1.88	118,000	2.02
42	96,000	1.60	104,000	1.75	113,000	1.89	121,000	2.03

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

5-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
15	.....	.....	.....	.....	25,000	1.25	27,600	1.39
16	.....	.....	25,500	1.19	28,400	1.33	31,200	1.47
17	25,500	1.11	28,600	1.25	31,800	1.40	34,900	1.54
18	28,500	1.17	31,900	1.31	35,200	1.46	38,600	1.60
19	31,500	1.22	35,100	1.37	38,700	1.51	42,300	1.66
20	34,500	1.27	38,300	1.42	42,200	1.56	46,000	1.71
21	37,500	1.31	41,600	1.46	45,700	1.61	49,800	1.75
22	40,600	1.35	44,900	1.50	49,300	1.65	53,600	1.79
23	43,600	1.39	48,200	1.54	52,800	1.69	57,400	1.83
24	46,700	1.42	51,600	1.57	56,400	1.72	61,200	1.87
25	49,800	1.45	54,900	1.60	60,000	1.75	65,100	1.90
26	52,900	1.48	58,300	1.63	63,600	1.78	68,900	1.93
27	56,100	1.50	61,700	1.65	67,200	1.81	72,800	1.96
28	59,200	1.53	65,000	1.68	70,900	1.83	76,700	1.98
29	62,300	1.55	68,400	1.70	74,500	1.85	80,600	2.01
30	65,500	1.57	71,800	1.72	78,100	1.88	84,500	2.03
31	68,600	1.59	75,200	1.74	81,800	1.90	88,300	2.05
32	71,800	1.61	78,600	1.76	85,500	1.91	92,300	2.07
33	75,000	1.62	82,000	1.78	89,100	1.93	96,100	2.09
34	78,200	1.64	85,500	1.79	92,800	1.95	100,000	2.10
35	81,300	1.66	88,900	1.81	96,500	1.96	104,000	2.12
36	84,500	1.67	92,300	1.82	100,000	1.98	108,000	2.13
37	87,700	1.68	95,700	1.84	103,000	1.99	112,000	2.15
38	90,900	1.70	99,200	1.85	107,000	2.01	116,000	2.16
39	94,000	1.71	103,000	1.86	111,000	2.02	120,000	2.18
40	97,200	1.72	106,000	1.87	115,000	2.03	124,000	2.19
41	100,000	1.73	110,000	1.89	119,000	2.04	128,000	2.20
42	104,000	1.74	113,000	1.90	122,000	2.05	131,000	2.21
43	107,000	1.75	116,000	1.91	126,000	2.06	135,000	2.22
44	110,000	1.76	120,000	1.92	130,000	2.07	139,000	2.23
45	113,000	1.77	123,000	1.93	133,000	2.08	143,000	2.24
46	116,000	1.78	127,000	1.93	137,000	2.09	147,000	2.25
47	120,000	1.79	130,000	1.94	141,000	2.10	151,000	2.26
48	123,000	1.79	134,000	1.95	145,000	2.11	155,000	2.27

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

5½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
16	.....	.....	.....	.....	.....	.....	31,500	1.48
17	.....	.....	.....	.....	32,100	1.42	35,400	1.57
18	.....	.....	32,200	1.33	35,800	1.49	39,400	1.64
19	31,900	1.24	35,700	1.40	39,600	1.56	43,400	1.71
20	35,100	1.30	39,200	1.46	43,400	1.62	47,500	1.77
21	38,400	1.35	42,800	1.51	47,200	1.67	51,600	1.83
22	41,700	1.40	46,400	1.56	51,100	1.72	55,700	1.88
23	45,100	1.44	50,000	1.60	54,900	1.76	59,900	1.92
24	48,400	1.48	53,600	1.64	58,800	1.80	64,000	1.97
25	51,800	1.52	57,300	1.68	62,700	1.84	68,200	2.01
26	55,200	1.55	60,900	1.71	66,700	1.88	72,400	2.04
27	58,600	1.58	64,600	1.74	70,600	1.91	76,600	2.07
28	62,000	1.61	68,300	1.77	74,600	1.94	80,900	2.10
29	65,400	1.64	72,000	1.80	78,600	1.97	85,100	2.13
30	68,900	1.66	75,700	1.83	82,500	1.99	89,400	2.16
31	72,300	1.68	79,400	1.85	86,500	2.02	93,600	2.19
32	75,800	1.71	83,200	1.87	90,500	2.04	97,900	2.21
33	79,200	1.73	86,900	1.89	94,500	2.06	102,000	2.23
34	82,700	1.75	90,600	1.91	98,600	2.08	106,000	2.25
35	86,200	1.77	94,400	1.93	103,000	2.10	111,000	2.27
36	89,700	1.78	98,100	1.95	107,000	2.12	115,000	2.29
37	93,200	1.80	102,000	1.97	111,000	2.14	119,000	2.31
38	96,600	1.81	106,000	1.98	115,000	2.15	124,000	2.32
39	100,000	1.83	109,000	2.00	119,000	2.17	128,000	2.34
40	104,000	1.84	113,000	2.01	123,000	2.18	132,000	2.35
41	107,000	1.85	117,000	2.03	127,000	2.20	137,000	2.37
42	111,000	1.87	121,000	2.04	131,000	2.21	141,000	2.38
43	114,000	1.88	125,000	2.05	135,000	2.22	145,000	2.40
44	118,000	1.89	128,000	2.06	139,000	2.23	150,000	2.41
45	121,000	1.90	132,000	2.07	143,000	2.24	154,000	2.42
46	125,000	1.91	136,000	2.08	147,000	2.26	158,000	2.43
47	128,000	1.92	140,000	2.09	151,000	2.27	163,000	2.44
48	132,000	1.93	144,000	2.10	155,000	2.28	167,000	2.45

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

6-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
18	.....	.....	.....	.....	36,000	1.50	39,800	1.67
19	.....	.....	35,900	1.41	40,000	1.58	44,100	1.75
20	35,300	1.31	39,700	1.48	44,100	1.65	48,500	1.82
21	38,900	1.37	43,500	1.54	48,200	1.71	53,000	1.89
22	42,400	1.43	47,400	1.60	52,400	1.77	57,400	1.95
23	46,000	1.48	51,300	1.65	56,600	1.83	61,800	2.00
24	49,700	1.52	55,200	1.70	60,800	1.87	66,300	2.05
25	53,300	1.57	59,100	1.74	65,000	1.92	70,800	2.10
26	57,000	1.61	63,100	1.78	69,200	1.96	75,400	2.14
27	60,600	1.64	67,100	1.82	73,500	2.00	79,900	2.18
28	64,300	1.68	71,100	1.86	77,800	2.04	84,500	2.21
29	68,000	1.71	75,100	1.89	82,100	2.07	89,100	2.25
30	71,800	1.74	79,100	1.92	86,400	2.10	93,700	2.28
31	75,500	1.77	83,100	1.95	90,700	2.13	98,300	2.31
32	79,200	1.79	87,200	1.97	95,100	2.16	103,000	2.34
33	83,000	1.82	91,200	2.00	99,400	2.18	108,000	2.37
34	86,800	1.84	95,300	2.02	104,000	2.21	112,000	2.39
35	90,500	1.86	99,300	2.05	108,000	2.23	117,000	2.41
36	94,300	1.88	103,000	2.07	112,000	2.25	122,000	2.43
37	98,100	1.90	107,000	2.09	117,000	2.27	126,000	2.45
38	102,000	1.92	112,000	2.11	121,000	2.29	131,000	2.47
39	106,000	1.94	116,000	2.12	126,000	2.31	136,000	2.49
40	109,000	1.96	120,000	2.14	130,000	2.32	140,000	2.51
41	113,000	1.97	124,000	2.16	134,000	2.34	145,000	2.53
42	117,000	1.99	128,000	2.17	139,000	2.36	150,000	2.54
43	121,000	2.00	132,000	2.19	143,000	2.37	154,000	2.56
44	125,000	2.01	136,000	2.20	148,000	2.39	159,000	2.57
45	129,000	2.03	140,000	2.21	152,000	2.40	164,000	2.59
46	132,000	2.04	144,000	2.23	156,000	2.41	169,000	2.60
47	136,000	2.05	149,000	2.24	161,000	2.43	173,000	2.61
48	140,000	2.06	153,000	2.25	165,000	2.44	178,000	2.62
49	144,000	2.07	157,000	2.26	170,000	2.45	183,000	2.63
50	148,000	2.08	161,000	2.27	174,000	2.46	188,000	2.65
51	151,000	2.09	165,000	2.28	179,000	2.47	192,000	2.66
52	155,000	2.10	169,000	2.29	183,000	2.48	197,000	2.67
53	159,000	2.11	173,000	2.30	188,000	2.49	202,000	2.68
54	163,000	2.12	178,000	2.31	192,000	2.50	206,000	2.69

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

6½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
19	.....	.....	.....	.....	.....	.....	44,400	1.76
20	.....	.....	.....	.....	44,400	1.67	49,000	1.85
21	.....	.....	43,900	1.56	48,800	1.74	53,700	1.92
22	42,700	1.44	48,000	1.63	53,200	1.81	58,500	1.99
23	46,600	1.50	52,100	1.69	57,700	1.87	63,300	2.06
24	50,500	1.55	56,300	1.74	62,200	1.93	68,100	2.12
25	54,300	1.61	60,500	1.79	66,700	1.98	72,900	2.17
26	58.300	1.65	64,800	1.84	71,300	2.03	77,800	2.22
27	62,200	1.70	69,000	1.89	75,900	2.08	82,700	2.27
28	66.200	1.74	73,300	1.93	80,500	2.12	87,600	2.31
29	70,200	1.77	77,600	1.96	85,100	2.16	92,600	2.35
30	74,200	1.81	82,000	2.00	89,700	2.19	97,500	2.39
31	78,200	1.84	86,300	2.03	94,500	2.23	103,000	2.42
32	82.200	1.87	90,600	2.06	99,100	2.26	107,000	2.45
33	86,200	1.90	95,000	2.09	104,000	2.29	112,000	2.48
34	90,300	1.93	99,400	2.12	108,000	2.32	118,000	2.51
35	94,300	1.95	104,000	2.15	113,000	2.34	123,000	2.54
36	98,400	1.98	108,000	2.17	118,000	2.37	128,000	2.57
37	103,000	2.00	113,000	2.20	123,000	2.39	133,000	2.59
38	107.000	2.02	117,000	2.22	127,000	2.42	138,000	2.61
39	111,000	2.04	121,000	2.24	132,000	2.44	143,000	2.64
40	115,000	2.06	126,000	2.26	137,000	2.46	148,000	2.66
41	119,000	2.08	130,000	2.28	142,000	2.48	153,000	2.68
42	123,000	2.10	135,000	2.30	146,000	2.50	158,000	2.70
43	127,000	2.11	139,000	2.31	151,000	2.51	163,000	2.71
44	131,000	2.13	144,000	2.33	156,000	2.53	168,000	2.73
45	134,000	2.14	148,000	2.34	161,000	2.55	173,000	2.75
46	139,000	2.16	152,000	2.36	165,000	2.56	178,000	2.76
47	144,000	2.17	157,000	2.37	170,000	2.58	183,000	2.78
48	148,000	2.19	161,000	2.39	175,000	2.59	188,000	2.79
49	152,000	2.20	166,000	2.40	180,000	2.60	194,000	2.81
50	156,000	2.21	170,000	2.41	184,000	2.62	199,000	2.82
51	160,000	2.22	175,000	2.43	189,000	2.63	204,000	2.83
52	164,000	2.23	179,000	2.44	194,000	2.64	209,000	2.84
53	168,000	2.25	184,000	2.45	199,000	2.65	214,000	2.85
54	173,000	2.26	188,000	2.46	204,000	2.66	219,000	2.87

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

7-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
21	.....	.....	.....	.....	49,000	1.75	54,200	1.94
22	.....	.....	48,200	1.63	53,700	1.83	59,200	2.03
23	.....	.....	52,600	1.70	58,400	1.90	64,300	2.10
24	50,800	1.57	57,000	1.77	63,200	1.97	69,400	2.17
25	55,000	1.63	61,500	1.83	68,000	2.03	74,600	2.23
26	59,200	1.68	66,000	1.88	72,900	2.09	79,800	2.29
27	63,400	1.73	70,600	1.94	77,800	2.14	85,000	2.34
28	67,600	1.78	75,100	1.98	82,700	2.19	90,200	2.39
29	71,800	1.82	79,700	2.03	87,600	2.23	95,500	2.44
30	76,100	1.86	84,300	2.07	92,600	2.27	101,000	2.48
31	80,400	1.90	89,000	2.11	97,500	2.31	106,000	2.52
32	84,700	1.94	93,600	2.14	103,000	2.35	111,000	2.56
33	89,000	1.97	98,300	2.18	108,000	2.39	117,000	2.59
34	93,300	2.00	103,000	2.21	113,000	2.42	122,000	2.63
35	97,700	2.03	108,000	2.24	118,000	2.45	128,000	2.66
36	102,000	2.06	112,000	2.27	123,000	2.48	133,000	2.69
37	106,000	2.08	117,000	2.30	128,000	2.51	138,000	2.72
38	111,000	2.11	122,000	2.32	133,000	2.53	144,000	2.74
39	115,000	2.13	127,000	2.35	138,000	2.56	149,000	2.77
40	120,000	2.15	131,000	2.37	143,000	2.58	155,000	2.79
41	124,000	2.18	136,000	2.39	148,000	2.60	160,000	2.82
42	128,000	2.20	141,000	2.41	153,000	2.63	166,000	2.84
43	133,000	2.22	146,000	2.43	158,000	2.65	171,000	2.86
44	137,000	2.24	150,000	2.45	163,000	2.66	176,000	2.88
45	142,000	2.25	155,000	2.47	168,000	2.68	182,000	2.90
46	146,000	2.27	160,000	2.49	174,000	2.70	187,000	2.92
47	150,000	2.29	165,000	2.50	179,000	2.72	193,000	2.93
48	155,000	2.30	169,000	2.52	184,000	2.73	198,000	2.95
49	159,000	2.32	174,000	2.53	189,000	2.75	204,000	2.97
50	164,000	2.33	179,000	2.55	194,000	2.76	209,000	2.98
51	168,000	2.35	184,000	2.56	199,000	2.78	215,000	3.00
52	173,000	2.36	189,000	2.58	204,000	2.79	220,000	3.01
53	177,000	2.37	193,000	2.59	210,000	2.81	226,000	3.02
54	182,000	2.38	198,000	2.60	215,000	2.82	231,000	3.04
55	186,000	2.40	203,000	2.61	220,000	2.83	237,000	3.05
56	191,000	2.41	208,000	2.62	225,000	2.84	242,000	3.06
57	195,000	2.42	213,000	2.64	230,000	2.86	248,000	3.07
58	200,000	2.43	218,000	2.65	235,000	2.87	253,000	3.09
59	204,000	2.44	222,000	2.66	241,000	2.88	259,000	3.10
60	209,000	2.45	227,000	2.67	246,000	2.89	265,000	3.11

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

7½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
22	.....	.....	.....	.....	.....	.....	59,500	2.04
23	.....	.....	.....	.....	58,800	1.92	64,900	2.12
24	.....	.....	57,300	1.78	63,800	1.99	70,300	2.20
25	55,200	1.64	62,100	1.85	68,900	2.06	75,800	2.27
26	59,600	1.70	66,800	1.91	74,000	2.13	81,300	2.34
27	64,100	1.76	71,700	1.97	79,200	2.19	86,800	2.40
28	68,600	1.81	76,500	2.03	84,400	2.24	92,400	2.46
29	73,100	1.86	81,400	2.08	89,700	2.30	98,000	2.51
30	77,600	1.91	86,300	2.13	94,900	2.34	104,000	2.56
31	82,100	1.95	91,200	2.17	100,000	2.39	109,000	2.61
32	86,700	1.99	96,100	2.21	106,000	2.43	115,000	2.65
33	91,300	2.03	101,000	2.25	111,000	2.47	121,000	2.69
34	95,800	2.06	106,000	2.29	116,000	2.51	126,000	2.73
35	101,000	2.10	111,000	2.32	122,000	2.54	132,000	2.77
36	105,000	2.13	116,000	2.35	127,000	2.58	138,000	2.80
37	110,000	2.16	121,000	2.39	132,000	2.61	144,000	2.83
38	114,000	2.19	126,000	2.41	138,000	2.63	149,000	2.87
39	119,000	2.22	131,000	2.44	143,000	2.67	155,000	2.89
40	124,000	2.24	136,000	2.47	149,000	2.70	161,000	2.92
41	128,000	2.27	141,000	2.49	154,000	2.72	167,000	2.95
42	133,000	2.29	146,000	2.52	159,000	2.75	173,000	2.97
43	138,000	2.31	151,000	2.54	165,000	2.77	178,000	3.00
44	143,000	2.33	157,000	2.56	170,000	2.79	184,000	3.02
45	147,000	2.35	162,000	2.58	176,000	2.81	190,000	3.04
46	152,000	2.37	167,000	2.60	181,000	2.83	196,000	3.06
47	157,000	2.39	172,000	2.62	187,000	2.85	202,000	3.08
48	162,000	2.41	177,000	2.64	192,000	2.87	208,000	3.10
49	166,000	2.43	182,000	2.66	198,000	2.89	213,000	3.12
50	171,000	2.44	187,000	2.67	203,000	2.90	219,000	3.14
51	176,000	2.46	192,000	2.69	209,000	2.92	225,000	3.16
52	181,000	2.47	197,000	2.71	214,000	2.94	231,000	3.17
53	185,000	2.49	203,000	2.72	220,000	2.95	237,000	3.19
54	190,000	2.50	208,000	2.74	225,000	2.97	243,000	3.20
55	195,000	2.52	213,000	2.75	231,000	2.98	249,000	3.22
56	200,000	2.53	218,000	2.76	236,000	3.00	255,000	3.23
57	204,000	2.54	223,000	2.78	242,000	3.01	261,000	3.24
58	209,000	2.56	228,000	2.79	247,000	3.02	266,000	3.26
59	214,000	2.57	233,000	2.80	253,000	3.03	272,000	3.27
60	219,000	2.58	239,000	2.81	258,000	3.05	278,000	3.28

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 18{,}000$ $n = 12$

8-Inch Slab

Depth in inches	$f_c = 650$		$f_c = 700$		$f_c = 750$		$f_c = 800$	
	Moment	Area	Moment	Area	Moment	Area	Moment	Area
23	.....	.....	.....	.....	.....	.....	65,100	2.13
24	.....	.....	.....	.....	64,000	2.00	70,800	2.22
25	.....	.....	.....	.....	69,400	2.08	76,500	2.30
26	.....	.....	67,200	1.93	74,800	2.15	82,300	2.38
27	64,400	1.77	72,300	2.00	80,200	2.22	88,100	2.45
28	69,100	1.83	77,400	2.06	85,700	2.29	94,000	2.51
29	73,900	1.89	82,600	2.12	91,200	2.34	99,900	2.57
30	78,600	1.94	87,700	2.17	96,800	2.40	106,000	2.63
31	83,400	1.99	92,900	2.22	102,000	2.45	112,000	2.68
32	88,300	2.03	98,100	2.27	108,000	2.50	118,000	2.73
33	93,100	2.08	103,000	2.31	114,000	2.55	124,000	2.78
34	98,000	2.12	109,000	2.35	119,000	2.59	130,000	2.82
35	103,000	2.16	114,000	2.39	125,000	2.63	136,000	2.86
36	108,000	2.19	119,000	2.43	131,000	2.67	142,000	2.90
37	113,000	2.23	125,000	2.46	136,000	2.70	148,000	2.94
38	118,000	2.26	130,000	2.50	142,000	2.74	154,000	2.97
39	123,000	2.29	135,000	2.53	148,000	2.77	160,000	3.01
40	128,000	2.32	141,000	2.56	154,000	2.80	167,000	3.04
41	133,000	2.35	146,000	2.59	159,000	2.83	173,000	3.07
42	138,000	2.37	151,000	2.62	165,000	2.86	179,000	3.10
43	143,000	2.40	157,000	2.64	171,000	2.88	185,000	3.12
44	148,000	2.42	162,000	2.67	177,000	2.91	191,000	3.15
45	153,000	2.45	168,000	2.69	183,000	2.93	198,000	3.18
46	158,000	2.47	173,000	2.71	188,000	2.96	204,000	3.20
47	163,000	2.49	178,000	2.73	194,000	2.98	210,000	3.22
48	168,000	2.51	184,000	2.76	200,000	3.00	216,000	3.24
49	173,000	2.53	189,000	2.78	206,000	3.02	222,000	3.27
50	178,000	2.55	195,000	2.79	212,000	3.04	229,000	3.29
51	183,000	2.57	200,000	2.81	218,000	3.06	235,000	3.30
52	188,000	2.58	206,000	2.83	223,000	3.08	241,000	3.32
53	193,000	2.60	211,000	2.85	229,000	3.09	247,000	3.34
54	198,000	2.62	217,000	2.86	235,000	3.11	254,000	3.36
55	203,000	2.63	222,000	2.88	241,000	3.13	260,000	3.38
56	208,000	2.65	228,000	2.90	247,000	3.14	266,000	3.39
57	213,000	2.66	233,000	2.91	253,000	3.16	273,000	3.41
58	218,000	2.68	238,000	2.92	259,000	3.17	279,000	3.42
59	223,000	2.69	244,000	2.94	265,000	3.19	285,000	3.44
60	228,000	2.70	249,000	2.95	270,000	3.20	291,000	3.45

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

f_s = 18,000 n = 12

9-Inch Slab

Depth in inches	f_c = 650 Moment	Area	f_c = 700 Moment	Area	f_c = 750 Moment	Area	f_c = 800 Moment	Area
26	.....	.....	.....	.....	.....	.....	83,100	2.41
27	.....	.....	.....	.....	81,000	2.25	89,600	2.50
28	.....	.....	.....	.....	87,000	2.33	96,000	2.58
29	.....	.....	83,700	2.15	93,100	2.41	103,000	2.66
30	79,500	1.96	89,400	2.22	99,200	2.47	109,000	2.73
31	84,800	2.03	95,100	2.28	105,000	2.54	116,000	2.80
32	90,100	2.09	101,000	2.34	112,000	2.60	122,000	2.86
33	95,500	2.14	107,000	2.40	118,000	2.66	129,000	2.92
34	101,000	2.19	112,000	2.45	124,000	2.71	136,000	2.97
35	106,000	2.24	118,000	2.50	130,000	2.76	142,000	3.03
36	112,000	2.29	124,000	2.55	137,000	2.81	149,000	3.07
37	117,000	2.33	130,000	2.59	143,000	2.86	156,000	3.12
38	123,000	2.37	136,000	2.64	149,000	2.90	163,000	3.17
39	128,000	2.41	142,000	2.68	156,000	2.94	170,000	3.21
40	134,000	2.45	148,000	2.71	162,000	2.98	176,000	3.25
41	139,000	2.48	154,000	2.75	169,000	3.02	182,000	3.29
42	145,000	2.52	160.000	2.79	175,000	3.05	190,000	3.32
43	150,000	2.55	166,000	2.82	181,000	3.09	197,000	3.36
44	156,000	2.58	172,000	2.85	188,000	3.12	204,000	3.39
45	161,000	2.61	178,000	2.88	194,000	3.15	211,000	3.42
46	167,000	2.64	184,000	2.91	201,000	3.18	218,000	3.45
47	173,000	2.66	190,000	2.94	207,000	3.21	225,000	3.48
48	178,000	2.69	196,000	2.96	214,000	3.23	232,000	3.51
49	184,000	2.72	202,000	2.99	220,000	3.26	239,000	3.53
50	190,000	2.74	208,000	3.01	227,000	3.29	246,000	3.56
51	195,000	2.76	214,000	3.04	233,000	3.31	253,000	3.58
52	201,000	2.78	220,000	3.06	240,000	3.33	260,000	3.61
53	206,000	2.80	227,000	3.08	247,000	3.35	267,000	3.63
54	212,000	2.83	233,000	3.10	253,000	3.38	274,000	3.65
55	218,000	2.84	239,000	3.11	260,000	3.40	281,000	3.67
56	224,000	2.86	245,000	3.14	266,000	3.42	288,000	3.69
57	229,000	2.88	251,000	3.16	273,000	3.43	295,000	3.71
58	235,000	2.90	257,000	3.18	279,000	3.45	302,000	3.73
59	241,000	2.92	263,000	3.19	286,000	3.47	309,000	3.75
60	246,000	2.93	269,000	3.21	293,000	3.48	316,000	3.76

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_c = 20{,}000$ $n = 15$

2-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
6	.....	.....	3,840	0.43	4,260	0.48	4,680	0.53
7	4,590	0.44	5,110	0.49	5,630	0.54	6,150	0.59
8	5,790	0.48	6,410	0.53	7,030	0.59	7,640	0.64
9	7,020	0.52	7,730	0.57	8,450	0.62	9,160	0.68
10	8,260	0.54	9,070	0.60	9,890	0.65	10,700	0.70
11	9,510	0.56	10,420	0.62	11,340	0.67	12,250	0.73
12	10,780	0.58	11,790	0.64	12,800	0.69	13,810	0.75
13	12,040	0.60	13,150	0.65	14,260	0.71	15,400	0.76
14	13,310	0.61	14,520	0.67	15,700	0.72	16,900	0.78
15	14,580	0.62	15,900	0.68	17,200	0.73	18,500	0.79
16	15,900	0.63	17,300	0.69	18,600	0.74	20,100	0.80
17	17,100	0.64	18,700	0.70	20,200	0.75	21,700	0.81
18	18,400	0.65	20,000	0.70	21,600	0.76	23,200	0.82
19	19,700	0.65	21,400	0.71	23,100	0.77	24,800	0.83
20	21,000	0.66	22,800	0.72	24,600	0.77	26,400	0.83
21	22,300	0.67	24,200	0.72	26,100	0.78	28,000	0.84
22	23,600	0.67	25,600	0.73	27,600	0.79	29,600	0.84
23	24,900	0.68	27,000	0.73	29,100	0.79	31,200	0.85
24	26,200	0.68	28,400	0.74	30,600	0.80	32,800	0.85

2½-Inch Slab

7	.....	.....	.....	.....	5,820	0.57	6,420	0.63
8	6,060	0.51	6,780	0.57	7,500	0.64	8,220	0.70
9	7,540	0.56	8,380	0.63	9,230	0.69	10,070	0.76
10	9,050	0.60	10,020	0.67	10,980	0.73	11,940	0.80
11	10,590	0.64	11,670	0.70	12,760	0.77	13,840	0.84
12	12,130	0.66	13,340	0.73	14,550	0.80	15,800	0.87
13	13,690	0.69	15,000	0.76	16,400	0.82	17,700	0.89
14	15,300	0.71	16,700	0.78	18,200	0.85	19,600	0.91
15	16,800	0.73	18,400	0.80	20,000	0.86	21,600	0.93
16	18,400	0.74	20,100	0.81	21,800	0.88	23,500	0.95
17	20,000	0.76	21,800	0.83	23,700	0.90	25,500	0.96
18	21,600	0.77	23,500	0.84	25,500	0.91	27,500	0.98
19	23,200	0.78	25,300	0.85	27,300	0.92	29,400	0.99
20	24,800	0.79	27,000	0.86	29,100	0.93	31,400	1.00
21	26,400	0.80	28,700	0.87	31,000	0.94	33,400	1.01
22	28,000	0.81	30,400	0.88	32,900	0.95	35,300	1.02
23	29,600	0.81	32,200	0.88	34,700	0.96	37,300	1.03
24	31,200	0.82	33,900	0.89	36,600	0.96	39,400	1.03

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

3-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
8	.....	.....	.....	.....	.....	.....	8,400	0.72
9	.....	.....	8,630	0.65	9,580	0.73	10,530	0.80
10	9,430	0.63	10,530	0.71	11,620	0.79	12,720	0.86
11	11,220	0.68	12,460	0.76	13,700	0.84	14,940	0.92
12	13,040	0.72	14,430	0.80	15,800	0.88	17,200	0.96
13	14,870	0.76	16,400	0.84	17,900	0.92	19,500	1.00
14	16,700	0.79	18,400	0.87	20,100	0.95	21,800	1.03
15	18,600	0.81	20,400	0.89	22,200	0.98	24,100	1.06
16	20,500	0.84	22,400	0.92	24,400	1.00	26,400	1.08
17	22,400	0.86	24,500	0.94	26,600	1.02	28,700	1.10
18	24,200	0.87	26,500	0.96	28,800	1.04	31,100	1.12
19	26,100	0.89	28,600	0.97	31,000	1.05	33,400	1.14
20	28,000	0.90	30,600	0.99	33,200	1.07	35,800	1.15
21	30,000	0.92	32,700	1.00	35,400	1.08	38,100	1.17
22	31,900	0.93	34,700	1.01	37,600	1.09	40,500	1.18
23	33,800	0.94	36,800	1.02	39,800	1.11	42,800	1.19
24	35,700	0.95	38,900	1.03	41,900	1.12	45,200	1.20
25	37,600	0.96	40,900	1.04	44,200	1.13	47,600	1.21
26	39,500	0.96	43,000	1.05	46,500	1.13	49,900	1.22
27	41,500	0.97	45,100	1.06	48,700	1.14	52,300	1.23
28	43,400	0.98	47,100	1.06	50,900	1.15	54,600	1.23
29	45,300	0.98	49,200	1.07	53,100	1.16	57,000	1.24
30	47,200	0.99	51,300	1.08	55,400	1.16	59,400	1.25
31	49,200	1.00	53,400	1.08	57,700	1.17	61,800	1.25
32	51,100	1.00	55,500	1.09	59,800	1.17	64,200	1.26
33	53,000	1.01	57,600	1.09	62,100	1.18	66,600	1.27
34	55,000	1.01	59,600	1.10	64,300	1.18	69,000	1.27
35	56,900	1.02	61,700	1.10	66,500	1.19	71,300	1.28
36	58,800	1.02	63,800	1.11	68,800	1.19	73,700	1.28

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

3½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
10	.....	.....	.....	.....	11,870	0.81	13,080	0.90
11	11,470	0.70	12,850	0.79	14,230	0.88	15,600	0.97
12	13,530	0.76	15,100	0.85	16,600	0.94	18,200	1.03
13	15,600	0.80	17,300	0.90	19,100	0.99	20,800	1.08
14	17,700	0.84	19,600	0.94	21,500	1.03	23,400	1.12
15	19,900	0.88	21,900	0.97	24,000	1.06	26,100	1.16
16	22,000	0.91	24,300	1.00	26,500	1.10	28,700	1.19
17	24,200	0.94	26,600	1.03	29,000	1.13	31,400	1.22
18	26,400	0.96	29,000	1.05	31,500	1.15	34,100	1.24
19	28,600	0.98	31,300	1.08	34,100	1.17	36,800	1.27
20	30,800	1.00	33,700	1.10	36,600	1.19	39,600	1.29
21	33,000	1.02	36,100	1.11	39,200	1.21	42,300	1.31
22	35,200	1.03	38,500	1.13	41,800	1.23	45,000	1.32
23	37,400	1.05	40,900	1.15	44,300	1.24	47,800	1.34
24	39,600	1.06	43,300	1.16	46,900	1.26	50,500	1.35
25	41,900	1.07	45,700	1.17	49,500	1.27	53,300	1.37
26	44,100	1.08	48,100	1.18	52,000	1.28	56,000	1.38
27	46,300	1.09	50,500	1.19	54,600	1.29	58,800	1.39
28	48,600	1.10	52,900	1.20	57,100	1.30	61,500	1.40
29	50,800	1.11	55,300	1.21	59,800	1.31	64,300	1.41
30	53,100	1.12	57,700	1.22	62,400	1.32	67,100	1.42
31	55,300	1.13	60,100	1.23	65,000	1.33	69,800	1.43
32	57,600	1.14	62,600	1.24	67,600	1.34	72,600	1.44
33	59,800	1.14	65,000	1.24	70,200	1.34	75,400	1.44
34	62,000	1.15	67,400	1.25	72,700	1.35	78,100	1.45
35	64,300	1.16	69,800	1.26	75,400	1.36	80,900	1.46
36	66,600	1.16	72,300	1.26	78,000	1.36	83,700	1.46

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

4-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
11	.....	.....	.....	.....	.....	.....	15,900	0.99
12	.....	.....	15,300	0.87	17,000	0.97	18,700	1.07
13	16,000	0.83	17,900	0.93	19,800	1.03	21,600	1.13
14	18,400	0.88	20,400	0.98	22,500	1.09	24,600	1.19
15	20,800	0.93	23,000	1.03	25,300	1.13	27,600	1.24
16	23,200	0.96	25,600	1.07	28,100	1.17	30,600	1.28
17	25,600	1.00	28,300	1.11	30,900	1.21	33,700	1.32
18	28,100	1.03	30,900	1.14	33,800	1.24	36,700	1.35
19	30,600	1.06	33,600	1.17	36,700	1.27	39,700	1.38
20	33,000	1.08	36,300	1.19	39,600	1.30	42,800	1.41
21	35,600	1.11	39,000	1.22	42,400	1.32	46,000	1.43
22	38,100	1.13	41,700	1.24	45,400	1.35	49,000	1.45
23	40,600	1.15	44,400	1.26	48,300	1.37	52,100	1.47
24	43,100	1.16	47,100	1.27	51,200	1.38	55,200	1.49
25	45,600	1.18	49,900	1.29	54,100	1.40	58,400	1.51
26	48,200	1.19	52,600	1.30	57,000	1.42	61,500	1.53
27	50,700	1.21	55,300	1.32	60,000	1.43	64,600	1.54
28	53,300	1.22	58,100	1.33	62,900	1.44	67,800	1.55
29	55,800	1.23	60,800	1.34	65,900	1.45	70,900	1.57
30	58,300	1.24	63,600	1.35	68,800	1.47	74,000	1.58
31	60,900	1.25	66,300	1.36	71,800	1.48	77,200	1.59
32	63,500	1.26	69,100	1.38	74,700	1.49	80,400	1.60
33	66,000	1.27	71,800	1.38	77,700	1.50	83,500	1.61
34	68,600	1.28	74,600	1.39	80,600	1.51	86,600	1.62
35	71,100	1.29	77,400	1.40	83,600	1.51	89,800	1.63
36	73,700	1.30	80,100	1.41	86,600	1.52	93,000	1.64
37	76,300	1.30	82,900	1.42	89,500	1.53	96,200	1.64
38	78,900	1.31	85,700	1.42	92,500	1.54	99,400	1.65
39	81,400	1.32	88,500	1.43	95,500	1.54	103,000	1.66
40	84,000	1.32	91,200	1.44	98,400	1.55	106,000	1.67
41	86,600	1.33	94,000	1.44	101,000	1.56	109,000	1.68
42	89,100	1.33	96,800	1.45	104,000	1.56	112,000	1.68

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

4½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
12	.....	.....	.....	.....	.....	.....	18,900	1.08
13	.....	.....	.....	.....	20,100	1.05	22,100	1.16
14	18,600	0.89	20,800	1.01	23,100	1.12	25,300	1.23
15	21,200	0.95	23,700	1.07	26,200	1.18	28,600	1.30
16	23,900	1.00	26,600	1.12	29,300	1.23	32,000	1.35
17	26,600	1.05	29,500	1.16	32,400	1.28	35,300	1.40
18	29,300	1.09	32,500	1.20	35,600	1.32	38,700	1.44
19	32,100	1.12	35,400	1.24	38,800	1.36	42,100	1.48
20	34,900	1.15	38,400	1.27	42,000	1.39	45,500	1.51
21	37,600	1.18	41,400	1.30	45,200	1.42	49,000	1.54
22	40,500	1.21	44,400	1.33	48,400	1.45	52,400	1.57
23	43,200	1.23	47,500	1.35	51,700	1.47	55,900	1.60
24	46,000	1.25	50,500	1.38	55,000	1.50	59,400	1.62
25	48,900	1.27	53,500	1.40	58,200	1.52	62,900	1.64
26	51,700	1.29	56,600	1.41	61,500	1.54	66,400	1.66
27	54,600	1.31	59,700	1.43	64,800	1.56	69,900	1.68
28	57,400	1.32	62,700	1.45	68,100	1.57	73,400	1.70
29	60,200	1.34	65,800	1.46	71,400	1.59	76,900	1.71
30	63,100	1.35	68,900	1.48	74,700	1.60	80,500	1.73
31	66,000	1.37	72,000	1.49	78,000	1.62	84,000	1.74
32	68,800	1.38	75,000	1.50	81,300	1.63	87,500	1.75
33	71,700	1.39	78,200	1.52	84,600	1.64	91,100	1.77
34	74,600	1.40	81,300	1.53	87,900	1.65	94,600	1 78
35	77,400	1.41	84,400	1.54	91,300	1.66	98,200	1.79
36	80,300	1.42	87,400	1.55	94,600	1.67	102,000	1.80
37	83,200	1.43	90,500	1.56	97,900	1.68	105,000	1.81
38	86,100	1.44	93,600	1.56	101,000	1.69	109,000	1.82
39	89,000	1.45	96,800	1.57	105,000	1.70	112,000	1.83
40	91,800	1.45	99,900	1.58	108,000	1.71	116,000	1.84
41	94,800	1.46	103,000	1.59	111,000	1.72	120,000	1.84
42	97,600	1.47	106,000	1.60	115,000	1.72	123,000	1.85

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

5-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
14	.....	.....	.....	.....	23,300	1.13	25,700	1.26
15	.....	.....	24,000	1.08	26,600	1.21	29,300	1.33
16	24,200	1.02	27,100	1.15	30,000	1.27	32,900	1.40
17	27,200	1.08	30,300	1.20	33,400	1.33	36,600	1.46
18	30,200	1.12	33,500	1.25	36,900	1.38	40,300	1.51
19	33,200	1.17	36,800	1.30	40,400	1.43	44,000	1.56
20	36,200	1.21	40,100	1.34	43,900	1.47	47,800	1.60
21	39,300	1.24	43,400	1.37	47,500	1.51	51,600	1.64
22	42,300	1.27	46,700	1.41	51,000	1.54	55,400	1.67
23	45,400	1.30	50,000	1.44	54,600	1.57	59,200	1.70
24	48,500	1.33	53,400	1.46	58,200	1.60	63,000	1.73
25	51,600	1.36	56,700	1.49	61,800	1.63	66,900	1.76
26	54,800	1.38	60,100	1.51	65,400	1.65	70,800	1.78
27	57,900	1.40	63,500	1.54	69,100	1.67	74,600	1.81
28	61,000	1.42	66,900	1.56	72,700	1.69	78,600	1.83
29	64,200	1.44	70,200	1.57	76,300	1.71	82,400	1.85
30	67,300	1.45	73,700	1.59	80,000	1.73	86,300	1.87
31	70,500	1.47	77,100	1.61	83,600	1.75	90,200	1.88
32	73,700	1.49	80,500	1.62	87,300	1.76	94,100	1.90
33	76,800	1.50	83,900	1.64	91,000	1.78	98,000	1.92
34	80,000	1.51	87,300	1.65	94,700	1.79	102,000	1.93
35	83,200	1.53	90,800	1.66	98,300	1.80	106,000	1.94
36	86,400	1.54	94,200	1.68	102,000	1.82	110,000	1.96
37	89,600	1.55	97,600	1.69	106,000	1.83	114,000	1.97
38	92,800	1.56	101,000	1.70	109,000	1.84	118,000	1.98
39	96,000	1.57	105,000	1.71	113,000	1.85	122,000	1.99
40	99,200	1.58	108,000	1.72	116,000	1.86	126,000	2.00
41	102,000	1.59	111,000	1.73	120,000	1.87	130,000	2.01
42	106,000	1.60	115,000	1.74	124,000	1.88	133,000	2.02
43	109,000	1.60	118,000	1.75	128,000	1.89	137,000	2.03
44	112,000	1.61	122,000	1.75	132,000	1.89	141,000	2.04
45	115,000	1.62	125,000	1.76	135,000	1.90	145,000	2.04
46	118,000	1.63	129,000	1.77	139,000	1.91	149,000	2.05
47	122,000	1.63	132,000	1.78	143,000	1.92	153,000	2.06
48	125,000	1.64	136,000	1.78	146,000	1.92	157,000	2.07

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

5½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
15	.....	.....	.....	.....	.....	.....	29,500	1.35
16	.....	.....	27,300	1.16	30,400	1.29	33,400	1.43
17	27,400	1.09	30,700	1.22	34,100	1.36	37,400	1.50
18	30,600	1.14	34,200	1.28	37,800	1.42	41,400	1.56
19	33,900	1.20	37,700	1.34	41,600	1.48	45,500	1.62
20	37,200	1.25	41,300	1.39	45,400	1.53	49,500	1.67
21	40,500	1.29	44,900	1.43	49,300	1.57	53,700	1.72
22	43,800	1.33	48,500	1.47	53,100	1.62	57,800	1.76
23	47,200	1.36	52,100	1.51	57,000	1.65	62,000	1.80
24	50,600	1.40	55,800	1.54	61,000	1.69	66,200	1.83
25	53,900	1.43	59,400	1.57	64,900	1.72	70,400	1.87
26	57,400	1.45	63,100	1.60	68,800	1.75	74,600	1.90
27	60,800	1.48	66,800	1.63	72,800	1.77	78,800	1.92
28	64,200	1.50	70,500	1.65	76,700	1.80	83,000	1.95
29	67,700	1.52	74,200	1.67	80,800	1.82	87,300	1.97
30	71,100	1.54	77,900	1.69	84,700	1.84	91,600	1.99
31	74,500	1.56	81,600	1.71	88,700	1.86	95,800	2.02
32	78,100	1.58	85,400	1.73	92,800	1.88	100,000	2.04
33	81,500	1.60	89,100	1.75	96,800	1.90	104,000	2.06
34	85,000	1.62	92,900	1.77	101,000	1.92	109,000	2.07
35	88,400	1.63	96,600	1.78	105,000	1.93	113,000	2.09
36	91,900	1.65	100,000	1.80	109,000	1.95	117,000	2.10
37	95,400	1.66	104,000	1.81	113,000	1.96	122,000	2.12
38	98,900	1.67	108,000	1.82	117,000	1.98	126,000	2.13
39	102,000	1.68	112,000	1.84	121,000	1.99	130,000	2.14
40	106,000	1.69	115,000	1.85	125,000	2.00	135,000	2.16
41	109,000	1.71	119,000	1.86	129,000	2.02	139,000	2.17
42	113,000	1.72	123,000	1.87	133,000	2.02	143,000	2.17
43	116,000	1.73	127,000	1.88	137,000	2.04	148,000	2.19
44	120,000	1.74	131,000	1.89	141,000	2.05	152,000	2.20
45	123,000	1.75	134,000	1.90	145,000	2.05	156,000	2.21
46	127,000	1.75	138,000	1.91	149,000	2.06	161,000	2.22
47	131,000	1.76	142,000	1.92	153,000	2.07	165,000	2.23
48	134,000	1.77	146,000	1.93	158,000	2.08	169,000	2.24

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

6-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
16	.....	.....	.....	.....	.....	.....	33,600	1.44
17	.....	.....	.....	....	34,300	1.38	37,800	1.52
18	.....	.....	34,500	1.30	38,300	1.45	42,100	1.60
19	34,200	1.21	38,300	1.36	42,400	1.52	46,500	1.67
20	37,700	1.27	42,100	1.42	46,500	1.57	50,900	1.73
21	41,300	1.32	46,000	1.47	50,600	1.63	55,300	1.78
22	44,900	1.37	49,900	1.52	54,800	1.68	59,800	1.83
23	48,500	1.41	53,800	1.57	59,000	1.72	64,300	1.88
24	52,200	1.45	57,700	1.61	63,300	1.76	68,800	1.92
25	55,800	1.48	61,700	1.64	67,500	1.80	73,300	1.96
26	59,500	1.52	65,700	1.68	71,800	1.83	77,900	1.99
27	63,200	1.55	69,600	1.71	76,000	1.87	82,500	2.03
28	66,900	1.58	73,600	1.74	80,400	1.90	87,100	2.06
29	70,600	1.60	77,600	1.76	84,700	1.92	91,700	2.09
30	74,400	1.63	81,700	1.79	89,000	1.95	96,300	2.11
31	78,100	1.65	85,700	1.81	93,300	1.97	101,000	2.14
32	81,900	1.67	89,800	1.83	97,700	2.00	106,000	2.16
33	85,600	1.69	93,800	1.85	102,000	2.02	110,000	2.18
34	89,400	1.71	97,900	1.87	106,000	2.04	115,000	2.20
35	93,200	1.73	102,000	1.89	111,000	2.06	120,000	2.22
36	97,000	1.75	106,000	1.91	115,000	2.08	124,000	2.24
37	101,000	1.76	110,000	1.93	120,000	2.09	129,000	2.26
38	105,000	1.78	114,000	1.94	124,000	2.11	134,000	2.27
39	108,000	1.79	118,000	1.96	128,000	2.12	138,000	2.29
40	112,000	1.80	122,000	1.97	133,000	2.14	143,000	2.30
41	116,000	1.82	127,000	1.98	137,000	2.15	148,000	2.32
42	120,000	1.83	131,000	2.00	142,000	2.16	152,000	2.33
43	124,000	1.84	135,000	2.01	146,000	2.18	157,000	2.34
44	127,000	1.85	139,000	2.02	150,000	2.19	162,000	2.36
45	131,000	1.86	143,000	2.03	155,000	2.20	167,000	2.37
46	135,000	1.87	147,000	2.04	159,000	2.21	171,000	2.38
47	139,000	1.88	151,000	2.05	164,000	2.22	176,000	2.39
48	143,000	1.89	155,000	2.06	168,000	2.23	181,000	2.40
49	147,000	1.90	160,000	2.07	173,000	2.24	186,000	2.41
50	150,000	1.91	164,000	2.08	177,000	2.25	190,000	2.42
51	154,000	1.92	168,000	2.09	181,000	2.26	195,000	2.43
52	158,000	1.93	172,000	2.10	186,000	2.27	200,000	2.44
53	162,000	1.94	176,000	2.11	190,000	2.28	204,000	2.45
54	166,000	1.94	180,000	2.11	195,000	2.28	209,000	2.45

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

6½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
18	.....	.....	.....	.....	.....	.....	42,500	1.62
19	.....	.....	38,500	1.37	42,800	1.54	47,100	1.70
20	38,000	1.28	42,600	1.44	47,200	1.60	51,800	1.77
21	41,700	1.34	46,700	1.50	51,600	1.67	56,500	1.83
22	45,600	1.39	50,800	1.56	56,100	1.72	61,300	1.89
23	49,400	1.44	55,000	1.61	60,600	1.78	66,100	1.94
24	53,300	1.49	59,200	1.66	65,100	1.82	71,000	1.99
25	57,300	1.53	63,500	1.70	69,600	1.87	75,800	2.04
26	61,200	1.57	67,700	1.74	74,200	1.91	80,700	2.08
27	65,200	1.60	72,000	1.78	78,900	1.95	85,700	2.12
28	69,200	1.64	76,300	1.81	83,400	1.98	90,600	2.15
29	73,100	1.67	80,700	1.84	88,100	2.01	95,600	2.19
30	77,200	1.70	85,000	1.87	92,800	2.05	101,000	2.22
31	81,200	1.72	89,300	1.90	97,400	2.07	106,000	2.25
32	85,200	1.75	93,700	1.92	102,000	2.10	111,000	2.27
33	89,300	1.77	98,100	1.95	107,000	2.12	116,000	2.30
34	93,400	1.80	102,000	1.97	112,000	2.15	121,000	2.32
35	97,400	1.82	107,000	1.99	116,000	2.17	126,000	2.35
36	102,000	1.84	111,000	2.01	121,000	2.19	131,000	2.37
37	106,000	1.86	116,000	2.03	126,000	2.21	136,000	2.39
38	110,000	1.87	120,000	2.05	130,000	2.23	141,000	2.41
39	114,000	1.89	124,000	2.07	135,000	2.25	146,000	2.43
40	118,000	1.91	129,000	2.09	140,000	2.27	151,000	2.44
41	122,000	1.92	133,000	2.10	145,000	2.28	156,000	2.46
42	126,000	1.94	138,000	2.12	149,000	2.30	161,000	2.48
43	130,000	1.95	142,000	2.13	154,000	2.31	166,000	2.49
44	134,000	1.96	147,000	2.14	159,000	2.32	171,000	2.51
45	138,000	1.98	151,000	2.16	164,000	2.34	176,000	2.52
46	143,000	1.99	156,000	2.17	169,000	2.35	181,000	2.53
47	147,000	2.00	160,000	2.18	173,000	2.36	187,000	2.54
48	151,000	2.01	165,000	2.19	178,000	2.37	192,000	2.56
49	155,000	2.02	169,000	2.20	183,000	2.39	197,000	2.57
50	159,000	2.03	173,000	2.21	188,000	2.40	202,000	2.58
51	163,000	2.04	178,000	2.23	193,000	2.41	207,000	2.59
52	168,000	2.05	182,000	2.23	197,000	2.42	212,000	2.60
53	172,000	2.06	187,000	2.24	202,000	2.43	217,000	2.61
54	176,000	2.07	191,000	2.25	207,000	2.44	222,000	2.62

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

f_s = 20,000 n = 15

7-Inch Slab

Depth in inches	f_c = 650 Moment	Area	f_c = 700 Moment	Area	f_c = 750 Moment	Area	f_c = 800 Moment	Area
19	.....	.....	.....	.....	.....	.....	47,400	1.71
20	.....	.....	.....	.....	47,400	1.62	52,300	1.79
21	.....	.....	47,000	1.52	52,200	1.69	57,300	1.87
22	45,900	1.40	51,400	1.58	56,900	1.76	62,400	1.93
23	50,000	1.46	55,800	1.64	61,700	1.82	67,500	2.00
24	54,100	1.52	60,300	1.69	66,500	1.87	72,700	2.05
25	58,300	1.56	64,800	1.74	71,400	1.93	77,900	2.11
26	62,500	1.61	69,400	1.79	76,200	1.97	83,200	2.15
27	66,700	1.65	73,900	1.83	81,200	2.02	88,400	2.20
28	71,000	1.69	78,500	1.87	86,100	2.06	93,600	2.24
29	75,300	1.72	83,100	1.91	91,000	2.09	98,900	2.28
30	79,500	1.76	87,800	1.94	96,000	2.13	104,000	2.31
31	83,800	1.79	92,400	1.98	101,000	2.16	110,000	2.35
32	88,200	1.82	97,100	2.01	106,000	2.19	115,000	2.38
33	92,500	1.85	102,000	2.03	111,000	2.22	120,000	2.41
34	96,900	1.87	106,000	2.06	116,000	2.25	126,000	2.44
35	101,000	1.90	112,000	2.09	121,000	2.28	131,000	2.46
36	106,000	1.92	116,000	2.11	126,000	2.30	136,000	2.49
37	110,000	1.94	121,000	2.13	131,000	2.32	142,000	2.51
38	114,000	1.96	125,000	2.15	136,000	2.34	147,000	2.53
39	119,000	1.98	130,000	2.17	141,000	2.36	153,000	2.56
40	123,000	2.00	135,000	2.19	147,000	2.38	158,000	2.58
41	128,000	2.02	140,000	2.21	152,000	2.40	164,000	2.59
42	132,000	2.04	144,000	2.23	157,000	2.42	169,000	2.61
43	136,000	2.05	149,000	2.25	162,000	2.44	175,000	2.63
44	141,000	2.07	154,000	2.26	167,000	2.45	180,000	2.65
45	145,000	2.08	159,000	2.28	172,000	2.47	186,000	2.66
46	150,000	2.10	164,000	2.29	177,000	2.48	191,000	2.68
47	154,000	2.11	168,000	2.30	183,000	2.50	196,000	2.69
48	159,000	2.12	173,000	2.32	183,000	2.51	202,000	2.71
49	163,000	2.14	178,000	2.33	193,000	2.53	208,000	2.72
50	168,000	2.15	183,000	2.34	198,000	2.54	213,000	2.73
51	172,000	2.16	188,000	2.35	203,000	2.55	219,000	2.75
52	176,000	2.17	192,000	2.36	208,000	2.56	224,000	2.76
53	181,000	2.18	197,000	2.38	213,000	2.57	230,000	2.77
54	185,000	2.19	202,000	2.39	218,000	2.58	235,000	2.78
55	190,000	2.20	207,000	2.40	224,000	2.59	241,000	2.79
56	194,000	2.21	212,000	2.41	228,000	2.60	246,000	2.80
57	199,000	2.22	216,000	2.42	234,000	2.61	252,000	2.81
58	203,000	2.23	221,000	2.42	239,000	2.62	257,000	2.82
59	208,000	2.24	226,000	2.43	244,000	2.63	263,000	2.83
60	212,000	2.24	231,000	2.44	250,000	2.64	268,000	2.84

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

7½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
20	.....	.....	.....	.....	.....	.....	52,500	1.80
21	.....	.....	.....	.....	52,400	1.70	57,800	1.89
22	.....	.....	51,600	1.59	57,400	1.78	63,100	1.96
23	50,200	1.47	56,300	1.66	62,400	1.85	68,500	2.03
24	54,600	1.53	61,000	1.72	67,500	1.91	74,000	2.10
25	59,100	1.59	65,800	1.78	72,700	1.97	79,500	2.16
26	63,400	1.64	70,600	1.83	77,800	2.02	85,000	2.22
27	67,900	1.69	75,500	1.88	83,000	2.07	90,600	2.27
28	72,400	1.73	80,300	1.92	88,300	2.12	96,200	2.31
29	76,900	1.77	85,200	1.97	93,500	2.16	102,000	2.36
30	81,500	1.81	90,200	2.01	98,800	2.20	108,000	2.40
31	86,100	1.85	95,100	2.04	104,000	2.24	113,000	2.44
32	90,700	1.88	100,000	2.08	109,000	2.28	118,000	2.48
33	95,300	1.91	105,000	2.11	115,000	2.31	125,000	2.51
34	100,000	1.94	110,000	2.14	120,000	2.34	130,000	2.54
35	105,000	1.97	115,000	2.17	126,000	2.37	136,000	2.57
36	109,000	1.99	120,000	2.20	131,000	2.40	142,000	2.60
37	114,000	2.02	125,000	2.22	136,000	2.42	148,000	2.63
38	119,000	2.04	130,000	2.25	142,000	2.45	153,000	2.65
39	123,000	2.07	135,000	2.27	147,000	2.47	159,000	2.68
40	128,000	2.09	140,000	2.29	153,000	2.50	165,000	2.70
41	133,000	2.11	145,000	2.31	158,000	2.52	171,000	2.72
42	137,000	2.13	150,000	2.33	164,000	2.54	177,000	2.74
43	142,000	2.15	156,000	2.35	169,000	2.56	182,000	2.76
44	147,000	2.16	161,000	2.37	175,000	2.58	188,000	2.78
45	152,000	2.18	166,000	2.39	180,000	2.59	194,000	2.80
46	156,000	2.20	171,000	2.40	185,000	2.61	200,000	2.82
47	161,000	2.21	176,000	2.42	191,000	2.63	206,000	2.83
48	166,000	2.23	181,000	2.44	196,000	2.64	212,000	2.85
49	171,000	2.24	186,000	2.45	202,000	2.66	218,000	2.87
50	175,000	2.26	191,000	2.46	207,000	2.67	224,000	2.88
51	180,000	2.27	197,000	2.48	213,000	2.69	229,000	2.89
52	185,000	2.28	202,000	2.49	218,000	2.70	235,000	2.91
53	190,000	2.29	207,000	2.50	224,000	2.71	241,000	2.92
54	194,000	2.31	212,000	2.51	230,000	2.72	247,000	2.93
55	199,000	2.32	217,000	2.53	235,000	2.74	253,000	2.95
56	204,000	2.33	222,000	2.54	241,000	2.75	259,000	2.96
57	209,000	2.34	227,000	2.55	246,000	2.76	265,000	2.97
58	213,000	2.35	233,000	2.56	252,000	2.77	271,000	2.98
59	218,000	2.36	238,000	2.57	257,000	2.78	277,000	2.99
60	223,000	2.37	243,000	2.58	262,000	2.79	282,000	3.00

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

8-Inch Slab

epth in ches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
22	.....	.....	.....	.....	.....	.....	63,500	1.98
23	.....	.....	.....	.....	62,800	1.86	69,200	2.06
24	.....	.....	61,400	1.73	68,100	1.93	74,900	2.13
25	59,300	1.60	66,400	1.80	73,600	2.00	80,700	2.20
26	64,000	1.66	71,500	1.86	79,000	2.06	86,500	2.26
27	68,700	1.71	76,600	1.91	84,500	2.12	92,400	2.32
28	73,400	1.76	81,700	1.97	90,000	2.17	98,400	2.38
29	78,200	1.81	86,900	2.01	95,600	2.22	104,000	2.43
30	83,000	1.85	92,100	2.06	101,000	2.27	110,000	2.47
31	87,900	1.89	97,300	2.10	107,000	2.31	116,000	2.52
32	92,700	1.93	103,000	2.14	112,000	2.35	122,000	2.56
33	97,600	1.97	108,000	2.18	118,000	2.39	128,000	2.60
34	102,000	2.00	113,000	2.21	124,000	2.42	135,000	2.64
35	107,000	2.03	118,000	2.24	129,000	2.46	141,000	2.67
36	112,000	2.06	124,000	2.28	135,000	2.49	147,000	2.70
37	117,000	2.09	129,000	2.30	141,000	2.52	153,000	2.73
38	122,000	2.12	134,000	2.33	147,000	2.55	159,000	2.76
39	127,000	2.14	140,000	2.36	152,000	2.57	165,000	2.79
40	132,000	2.17	145,000	2.38	158,000	2.60	171,000	2.82
41	137,000	2.19	151,000	2.41	164,000	2.62	177,000	2.84
42	142,000	2.21	156,000	2.43	170,000	2.65	184,000	2.87
43	147,000	2.23	161,000	2.45	176,000	2.67	190,000	2.89
44	152,000	2.25	166,000	2.47	181,000	2.69	196,000	2.91
45	157,000	2.27	172,000	2.49	187,000	2.71	202,000	2.93
46	162,000	2.29	178,000	2.51	193,000	2.73	208,000	2.95
47	167,000	2.31	183,000	2.53	199,000	2.75	215,000	2.97
48	172,000	2.33	189,000	2.55	205,000	2.77	221,000	2.99
49	177,000	2.34	194,000	2.56	210,000	2.78	227,000	3.00
50	183,000	2.36	199,000	2.58	216,000	2.80	233,000	3.02
51	188,000	2.37	205,000	2.59	222,000	2.82	240,000	3.04
52	193,000	2.39	210,000	2.61	228,000	2.83	246,000	3.05
53	198,000	2.40	216,000	2.62	234,000	2.84	252,000	3.07
54	203,000	2.41	221,000	2.64	240,000	2.86	258,000	3.08
55	208,000	2.43	227,000	2.65	246,000	2.87	265,000	3.10
56	213,000	2.44	232,000	2.66	252,000	2.89	271,000	3.11
57	218,000	2.45	238,000	2.68	258,000	2.90	277,000	3.12
58	223,000	2.46	243,000	2.69	263,000	2.91	284,000	3.13
59	228,000	2.47	249,000	2.70	269,000	2.92	290,000	3.15
60	233,000	2.48	254,000	2.71	275,000	2.93	296,000	3.16

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 15$

9-Inch Slab

Depth in inches	$f_c = 650$		$f_c = 700$		$f_c = 750$		$f_c = 800$	
	Moment	Area	Moment	Area	Moment	Area	Moment	Area
24	.....	.....	.....	.....	.....	.....	75,600	2.16
25	.....	.....	.....	.....	77,000	2.02	81,900	2.25
26	.....	.....	.....	.....	80,200	2.10	88,300	2.33
27	.....	.....	77,700	1.95	86,200	2.18	94,800	2.40
28	74,400	1.79	83,300	2.02	92,300	2.24	101,000	2.47
29	79,600	1.85	89,000	2.08	98,500	2.30	108,000	2.53
30	84,900	1.90	94,800	2.13	105,000	2.36	114,000	2.59
31	90,200	1.96	101,000	2.19	111,000	2.42	121,000	2.65
32	95,600	2.00	106,000	2.24	117,000	2.47	128,000	2.70
33	101,000	2.05	112,000	2.28	123,000	2.52	135,000	2.75
34	106,000	2.09	118,000	2.33	130,000	2.56	141,000	2.80
35	112,000	2.13	124,000	2.37	136,000	2.60	148,000	2.84
36	117,000	2.17	130,000	2.41	142,000	2.64	155,000	2.88
37	123,000	2.21	136,000	2.44	149,000	2.68	162,000	2.92
38	128,000	2.24	142,000	2.48	155,000	2.72	168,000	2.96
39	134,000	2.27	148,000	2.51	161,000	2.75	175,000	2.99
40	139,000	2.30	154,000	2.54	168,000	2.78	182,000	3.02
41	145,000	2.33	160,000	2.57	174,000	2.82	189,000	3.06
42	151,000	2.36	166,000	2.60	181,000	2.84	196,000	3.09
43	156,000	2.39	172,000	2.63	187,000	2.87	203,000	3.11
44	162,000	2.41	178,000	2.66	194,000	2.90	210,000	3.14
45	167,000	2.44	184,000	2.68	200,000	2.93	217,000	3.17
46	173,000	2.46	190,000	2.71	207,000	2.95	224,000	3.19
47	179,000	2.48	196,000	2.73	213,000	2.97	231,000	3.22
48	184,000	2.51	202,000	2.75	220,000	3.00	238,000	3.24
49	190,000	2.53	208,000	2.77	226,000	3.02	245,000	3.26
50	195,000	2.55	214,000	2.79	233,000	3.04	252,000	3.28
51	201,000	2.57	220,000	2.81	239,000	3.06	259,000	3.30
52	207,000	2.58	226,000	2.83	246,000	3.08	266,000	3.32
53	212,000	2.60	233,000	2.85	253,000	3.09	273,000	3.34
54	218,000	2.62	239,000	2.87	259,000	3.11	280,000	3.36
55	224,000	2.64	245,000	2.88	266,000	3.13	287,000	3.38
56	230,000	2.65	251,000	2.90	272,000	3.15	294,000	3.39
57	235,000	2.66	257,000	2.91	279,000	3.16	301,000	3.41
58	241,000	2.68	263,000	2.93	286,000	3.18	308,000	3.43
59	247,000	2.69	269,000	2.94	292,000	3.19	315,000	3.44
60	252,000	2.71	276,000	2.96	299,000	3.21	322,000	3.46

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

2-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
7	.....	.....	4,570	0.43	5,090	0.49	5,610	0.54
8	5,240	0.43	5,850	0.48	6,470	0.54	7,090	0.59
9	6,450	0.47	7,170	0.52	7,880	0.58	8,600	0.63
10	7,680	0.50	8,500	0.56	9,310	0.61	10,120	0.66
11	8,930	0.53	9,840	0.58	10,750	0.64	11,660	0.69
12	10,180	0.55	11,190	0.60	12,200	0.66	13,220	0.71
13	11,440	0.57	12,550	0.62	13,660	0.68	14,770	0.73
14	12,710	0.58	13,920	0.64	15,100	0.69	16,300	0.75
15	13,980	0.59	15,300	0.65	16,600	0.71	17,900	0.76
16	15,300	0.61	16,700	0.66	18,100	0.72	19,500	0.77
17	16,500	0.62	18,000	0.67	19,600	0.73	21,100	0.79
18	17,800	0.63	19,400	0.68	21,000	0.74	22,600	0.80
19	19,100	0.63	20,800	0.69	22,500	0.75	24,200	0.80
20	20,400	0.64	22,200	0.70	24,000	0.76	25,800	0.81
21	21,700	0.65	23,600	0.70	25,500	0.76	27,400	0.82
22	22,900	0.65	25,000	0.71	27,000	0.77	29,000	0.83
23	24,200	0.66	26,300	0.72	28,400	0.77	30,600	0.83
24	25,500	0.66	27,700	0.72	29,900	0.78	32,100	0.84

2½-Inch Slab

8	.....	.....	.....	.....	.....	.....	7,400	0.62
9	6,690	0.49	7,540	0.56	8,380	0.62	9,220	0.69
10	8,180	0.54	9,150	0.61	10,110	0.67	11,080	0.74
11	9,700	0.58	10,790	0.65	11,870	0.71	12,960	0.78
12	11,230	0.61	12,440	0.68	13,650	0.75	14,860	0.81
13	12,780	0.64	14,100	0.71	15,400	0.78	16,800	0.84
14	14,340	0.66	15,800	0.73	17,300	0.80	18,700	0.87
15	15,900	0.68	17,500	0.75	19,100	0.82	20,700	0.89
16	17,500	0.70	19,200	0.77	20,900	0.84	22,600	0.91
17	19,100	0.72	20,900	0.79	22,700	0.86	24,600	0.93
18	20,600	0.73	22,600	0.80	24,600	0.87	26,500	0.94
19	22,200	0.75	24,300	0.82	26,400	0.89	28,500	0.96
20	23,800	0.76	26,000	0.83	28,200	0.90	30,400	0.97
21	25,400	0.77	27,700	0.84	30,100	0.91	32,400	0.98
22	27,000	0.78	29,500	0.85	31,900	0.92	34,400	0.99
23	28,600	0.79	31,200	0.86	33,800	0.93	36,400	1.00
24	30,200	0.79	32,900	0.87	35,600	0.94	38,300	1.01

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

3-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
10	.....	.....	.....	.....	10,420	0.70	11,520	0.77
11	9,990	0.60	11,230	0.68	12,480	0.76	13,720	0.83
12	11,790	0.65	13,170	0.73	14,560	0.81	16,000	0.89
13	13,600	0.69	15,100	0.77	16,700	0.85	18,200	0.93
14	15,400	0.72	17,100	0.80	18,800	0.88	20,500	0.96
15	17,300	0.75	19,100	0.83	20,900	0.91	22,800	1.00
16	19,200	0.78	21,100	0.86	23,100	0.94	25,100	1.02
17	21,000	0.80	23,200	0.88	25,300	0.97	27,400	1.05
18	22,900	0.82	25,200	0.91	27,500	0.99	29,700	1.07
19	24,800	0.84	27,200	0.92	29,600	1.01	32,100	1.09
20	26,700	0.86	29,300	0.94	31,800	1.02	34,440	1.11
21	28,600	0.87	31,300	0.96	34,000	1.04	36,800	1.12
22	30,500	0.89	33,400	0.97	36,200	1.05	39,100	1.14
23	32,400	0.90	35,400	0.98	38,400	1.07	41,500	1.15
24	34,300	0.91	37,500	0.99	40,700	1.08	43,800	1.16
25	36,200	0.92	39,600	1.00	42,900	1.09	46,200	1.17
26	38,200	0.93	41,600	1.01	45,100	1.10	48,600	1.18
27	40,100	0.94	43,700	1.02	47,300	1.11	50,900	1.19
28	42,000	0.95	45,700	1.03	49,500	1.12	53,300	1.20
29	43,900	0.95	47,800	1.04	51,700	1.12	55,600	1.21
30	45,800	0.96	49,900	1.05	54,000	1.13	58,000	1.22
31	47,800	0.97	52,000	1.05	56,300	1.14	60,400	1.22
32	49,700	0.97	54,100	1.06	58,400	1.15	62,800	1.23
33	51,600	0.98	56,100	1.07	60,700	1.15	65,200	1.24
34	53,600	0.99	58,200	1.07	62,900	1.16	67,600	1.24
35	55,500	0.99	60,300	1.08	65,700	1.16	69,900	1.25
36	57,400	1.00	62,400	1.08	67,400	1.17	72,300	1.25

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

3½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
11	.....	.....	.....	.....	.....	.....	14,000	0.86
12	.....	.....	13,430	0.75	14,980	0.83	16,500	0.92
13	13,900	0.71	15,700	0.80	17,400	0.89	19,100	0.98
14	16,000	0.76	17,900	0.85	19,800	0.94	21,700	1.03
15	18,200	0.80	20,200	0.89	22,300	0.98	24,300	1.08
16	20,300	0.83	22,500	0.93	24,800	1.02	27,000	1.11
17	22,500	0.86	24,900	0.96	27,300	1.05	29,700	1.15
18	24,600	0.89	27,200	0.99	29,800	1.08	32,300	1.18
19	26,800	0.92	29,500	1.01	32,300	1.11	35,000	1.20
20	29,000	0.94	31,900	1.04	34,800	1.13	37,800	1.23
21	31,200	0.96	34,300	1.06	37,400	1.15	40,500	1.25
22	33,400	0.98	36,700	1.07	39,900	1.17	43,200	1.27
23	35,600	0.99	39,000	1.09	42,500	1.19	45,900	1.29
24	37,800	1.01	41,400	1.11	45,000	1.20	48,700	1.30
25	40,000	1.02	43,800	1.12	47,600	1.22	51,400	1.32
26	42,200	1.04	46,200	1.14	50,200	1.23	54,100	1.33
27	44,500	1.05	48,600	1.15	52,700	1.25	56,900	1.34
28	46,700	1.06	51,000	1.16	55,300	1.26	59,700	1.36
29	48,900	1.07	53,400	1.17	57,900	1.27	62,400	1.37
30	51,200	1.08	55,900	1.18	60,500	1.28	65,200	1.38
31	53,400	1.09	58,300	1.19	63,100	1.29	67,900	1.39
32	55,700	1.10	60,700	1.20	65,700	1.30	70,700	1.40
33	57,900	1.11	63,100	1.21	68,300	1.31	73,500	1.41
34	60,100	1.11	65,500	1.21	70,800	1.31	76,200	1.41
35	62,400	1.12	67,900	1.22	73,500	1.32	79,000	1.42
36	64,600	1.13	70,400	1.23	76,100	1.33	81,800	1.43

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

f_s = 20,000 n = 12

4-Inch Slab

Depth in inches	f_c = 650		f_c = 700		f_c = 750		f_c = 800	
	Moment	Area	Moment	Area	Moment	Area	Moment	Area
13	.....	.....	.....	.....	17,600	0.91	19,500	1.01
14	.....	.....	18,300	0.87	20,300	0.97	22,400	1.07
15	18,600	0.82	20,800	0.92	23,100	1.03	25,400	1.13
16	21,000	0.86	23,400	0.97	25,900	1.08	28,400	1.18
17	23,400	0.91	26,000	1.01	28,700	1.12	31,400	1.22
18	25,800	0.94	28,700	1.05	31,500	1.16	34,400	1.26
19	28,300	0.97	31,300	1.08	34,400	1.19	37,400	1.30
20	30,700	1.00	34,000	1.11	37,200	1.22	40,500	1.33
21	33,200	1.03	36,700	1.14	40,100	1.25	43,600	1.36
22	35,700	1.05	39,400	1.16	43,000	1.27	46,700	1.38
23	38,200	1.08	42,100	1.19	45,900	1.30	49,800	1.41
24	40,700	1.10	44,800	1.21	48,800	1.32	52,900	1.43
25	43,200	1.12	47,500	1.23	51,700	1.34	56,000	1.45
26	45,800	1.13	50,200	1.24	54,600	1.35	59,100	1.46
27	48,300	1.15	52,900	1.26	57,600	1.37	62,200	1.48
28	50,800	1.16	55,700	1.27	60,500	1.39	65,400	1.50
29	53,400	1.18	58,400	1.29	63,400	1.40	68,500	1.51
30	55,900	1.19	61,100	1.30	66,200	1.41	71,600	1.52
31	58,400	1.20	63,900	1.31	69,300	1.43	74,800	1.54
32	61,000	1.21	66,600	1.32	72,300	1.44	77,900	1.55
33	63,600	1.22	69,400	1.34	75,200	1.45	81,100	1.56
34	66,100	1.23	72,100	1.35	78,200	1.46	84,200	1.57
35	68,700	1.24	74,900	1.36	81,100	1.47	87,400	1.58
36	71,200	1.25	77,700	1.36	84,100	1.48	90,500	1.59
37	73,800	1.26	80,400	1.37	87,100	1.49	93,700	1.60
38	76,400	1.27	83,200	1.38	90,000	1.50	96,900	1.61
39	79,000	1.28	86,000	1.39	93,000	1.50	100,000	1.62
40	81,500	1.28	88,700	1.40	96,000	1.51	103,000	1.62
41	84,100	1.29	91,500	1.40	98,900	1.52	106,000	1.63
42	86,600	1.30	94,300	1.41	102,000	1.52	109,000	1.64

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

4½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
14	.....	.....	.....	.....	.....	.....	22,700	1.09
15	.....	.....	.....	.....	23,500	1.05	25,900	1.16
16	.....	.....	23,900	0.99	26,500	1.11	29,200	1.22
17	23,800	0.93	26,700	1.04	29,600	1.16	32,500	1.28
18	26,500	0.97	29,600	1.09	32,800	1.21	35,900	1.33
19	29,200	1.01	32,600	1.13	35,900	1.25	39,300	1.37
20	32,000	1.05	35,500	1.17	39,100	1.29	42,700	1.41
21	34,700	1.08	38,500	1.21	42,300	1.33	46,100	1.45
22	37,500	1.12	41,500	1.24	45,500	1.36	49,500	1.48
23	40,300	1.14	44,500	1.27	48,800	1.39	53,000	1.51
24	43,100	1.17	47,500	1.29	52,000	1.41	56,400	1.54
25	45,900	1.19	50,600	1.31	55,200	1.44	59,900	1.56
26	48,700	1.21	53,600	1.34	58,500	1.46	63,400	1.58
27	51,500	1.23	56,700	1.36	61,800	1.48	66,900	1.60
28	54,400	1.25	59,700	1.38	65,100	1.50	70,400	1.62
29	57,200	1.27	62,800	1.39	68,400	1.52	73,900	1.64
30	60,100	1.29	65,900	1.41	71,600	1.54	77,400	1.66
31	62,900	1.30	68,900	1.43	74,900	1.55	81,000	1.68
32	65,800	1.32	72,000	1.44	78,200	1.57	84,500	1.69
33	68,600	1.33	75,100	1.45	81,600	1.58	88,000	1.71
34	71,500	1.34	78,200	1.47	84,900	1.59	91,600	1.72
35	74,400	1.35	81,300	1.48	88,200	1.61	95,100	1.73
36	77,200	1.36	84,300	1.49	91,500	1.62	98,600	1.74
37	80,100	1.37	87,400	1.50	94,800	1.63	102,000	1.75
38	83,000	1.38	90,500	1.51	98,100	1.64	106,000	1.77
39	85,900	1.39	93,600	1.52	102,000	1.65	109,000	1.78
40	88,700	1.40	96,700	1.53	105,000	1.66	113,000	1.79
41	91,600	1.41	99,900	1.54	108,000	1.67	116,000	1.79
42	94,500	1.42	103,000	1.55	111,000	1.67	120,000	1.80

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

5-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
16	.....	.....	.....	.....	.....	.....	29,600	1.24
17	.....	.....	27,000	1.06	30,100	1.18	33,200	1.31
18	26,800	0.98	30,100	1.11	33,500	1.24	36,900	1.37
19	29,700	1.04	33,400	1.17	37,000	1.30	40,600	1.43
20	32,700	1.08	36,600	1.21	40,500	1.34	44,300	1.48
21	35,800	1.12	39,900	1.25	44,000	1.39	48,100	1.52
22	38,800	1.16	43,100	1.29	47,500	1.43	51,800	1.56
23	41,800	1.19	46,400	1.33	51,000	1.46	55,600	1.60
24	44,900	1.23	49,800	1.36	54,600	1.49	59,400	1.63
25	48,000	1.26	53,100	1.39	58,200	1.52	63,300	1.66
26	51,100	1.28	56,400	1.42	61,800	1.55	67,100	1.69
27	54,200	1.31	59,800	1.44	65,400	1.58	71,000	1.71
28	57,400	1.33	63,200	1.47	69,000	1.60	74,800	1.74
29	60,500	1.35	66,600	1.49	72,600	1.62	78,700	1.76
30	63,600	1.37	70,000	1.51	76,300	1.65	82,600	1.78
31	66,800	1.39	73,300	1.53	79,900	1.67	86,500	1.80
32	69,900	1.41	76,800	1.55	83,600	1.68	90,400	1.82
33	73,100	1.42	80,100	1.56	87,200	1.70	94,300	1.84
34	76,300	1.44	83,600	1.58	90,900	1.72	98,200	1.86
35	79,400	1.45	87,000	1.59	94,600	1.73	102,000	1.87
36	82,600	1.47	90,400	1.61	98,200	1.75	106,000	1.89
37	85,800	1.48	93,800	1.62	102,000	1.76	110,000	1.90
38	89,000	1.49	97,400	1.63	106,000	1.77	114,000	1.91
39	92,100	1.50	101,000	1.65	109,000	1.79	118,000	1.93
40	95,300	1.52	104,000	1.66	113,000	1.80	122,000	1.94
41	98,500	1.53	108,000	1.67	117,000	1.81	126,000	1.95
42	102,000	1.54	111,000	1.68	120,000	1.82	130,000	1.96
43	105,000	1.55	114,000	1.69	124,000	1.83	134,000	1.97
44	108,000	1.55	118,000	1.70	128,000	1.84	138,000	1.98
45	111,000	1.56	121,000	1.71	131,000	1.85	141,000	1.99
46	114,000	1.57	125,000	1.71	135,000	1.86	145,000	2.00
47	118,000	1.58	128,000	1.72	139,000	1.86	149,000	2.01
48	121,000	1.59	132,000	1.73	143,000	1.87	153,000	2.01

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

5½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
17	.....	.....	.....	.....	.....	.....	33,400	1.32
18	.....	.....	.....	.....	33,800	1.26	37,400	1.40
19	.....	.....	33,700	1.18	37,500	1.32	41,400	1.46
20	33,000	1.09	37,200	1.24	41,300	1.38	45,400	1.52
21	36,300	1.14	40,700	1.29	45,100	1.43	49,500	1.57
22	39,600	1.19	44,300	1.33	48,900	1.48	53,600	1.62
23	42,900	1.23	47,900	1.38	52,800	1.52	57,700	1.67
24	46,300	1.27	51,500	1.42	56,700	1.56	61,900	1.71
25	49,600	1.30	55,100	1.45	60,600	1.60	66,100	1.74
26	53,000	1.34	58,800	1.48	64,500	1.63	70,200	1.78
27	56,400	1.37	62,300	1.51	68,400	1.66	74,500	1.81
28	59,800	1.39	66,100	1.54	72,400	1.69	78,700	1.84
29	63,200	1.42	69,800	1.57	76,400	1.72	82,900	1.87
30	66,700	1.44	73,500	1.59	80,300	1.74	87,200	1.89
31	70,100	1.47	77,200	1.62	84,300	1.77	91,400	1.92
32	73,500	1.49	80,900	1.64	88,300	1.79	95,800	1.94
33	77,000	1.51	84,600	1.66	92,300	1.81	99,500	1.96
34	80,500	1.53	88,400	1.68	96,300	1.83	104,000	1.98
35	83,900	1.54	92,100	1.70	100,000	1.85	108,000	2.00
36	87,400	1.56	95,900	1.71	104,000	1.87	113,000	2.02
37	90,900	1.58	99,600	1.73	108,000	1.88	117,000	2.04
38	94,300	1.59	103,000	1.74	112,000	1.90	121,000	2.05
39	97,800	1.61	107,000	1.76	116,000	1.91	126,000	2.07
40	101,000	1.62	111,000	1.77	120,000	1.93	130,000	2.08
41	105,000	1.63	115,000	1.79	124,000	1.94	134,000	2.09
42	108,000	1.64	118,000	1.80	128,000	1.95	139,000	2.11
43	112,000	1.66	122,000	1.81	133,000	1.96	143,000	2.12
44	115,000	1.67	126,000	1.82	137,000	1.98	147,000	2.13
45	119,000	1.68	130,000	1.83	141,000	1.99	152,000	2.14
46	122,000	1.69	134,000	1.84	145,000	2.00	156,000	2.15
47	126,000	1.70	137,000	1.85	149,000	2.01	160,000	2.16
48	129,000	1.71	141,000	1.86	153,000	2.02	165,000	2.17

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

6-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
19	.....	.....	.....	.....	.....	.....	41,700	1.48
20	.....	.....	.....	.....	41,700	1.39	46,100	1.55
21	.....	.....	41,100	1.30	45,800	1.46	50,500	1.61
22	40,000	1.20	44,900	1.36	49,900	1.51	54,900	1.67
23	43,500	1.25	48,800	1.41	54,100	1.57	59,300	1.72
24	47,100	1.30	52,700	1.45	58,300	1.61	63,800	1.77
25	50,800	1.34	56,600	1.50	62,500	1.66	68,300	1.81
26	54,400	1.38	60,600	1.54	66,700	1.70	72,800	1.86
27	58,100	1.41	64,500	1.57	70,900	1.73	77,400	1.89
28	61,800	1.45	68,500	1.61	75,200	1.77	82,000	1.93
29	65,400	1.48	72,500	1.64	79,500	1.80	86,500	1.96
30	69,200	1.51	76,500	1.67	83,800	1.83	91,100	1.99
31	72,900	1.53	80,500	1.70	88,100	1.86	95,700	2.02
32	76,600	1.56	84,500	1.72	92,400	1.88	100,000	2.05
33	80,300	1.58	88,500	1.75	96,800	1.91	105,000	2.07
34	84,100	1.60	92,600	1.77	101,000	1.93	110,000	2.10
35	87,900	1.62	96,700	1.79	105,000	1.95	114,000	2.12
36	91,600	1.65	101,000	1.81	110,000	1.98	119,000	2.14
37	95,400	1.67	105,000	1.83	114,000	1.99	124,000	2.16
38	99,200	1.68	109,000	1.85	119,000	2.01	128,000	2.18
39	103,000	1.70	113,000	1.87	123,000	2.03	133,000	2.20
40	107,000	1.71	117,000	1.88	127,000	2.05	138,000	2.21
41	111,000	1.73	121,000	1.90	132,000	2.06	142,000	2.23
42	114,000	1.75	125,000	1.92	136,000	2.08	147,000	2.25
43	118,000	1.76	129,000	1.93	140,000	2.09	151,000	2.26
44	122,000	1.77	133,000	1.94	145,000	2.11	156,000	2.28
45	126,000	1.78	138,000	1.95	149,000	2.12	161,000	2.29
46	130,000	1.80	142,000	1.96	154,000	2.13	166,000	2.30
47	133,000	1.81	146,000	1.98	158,000	2.15	171,000	2.31
48	137,000	1.82	150,000	1.99	163,000	2.16	175,000	2.32
49	141,000	1.83	154,000	2.00	167,000	2.17	180,000	2.34
50	145,000	1.84	158,000	2.01	171,000	2.18	185,000	2.35
51	149,000	1.85	162,000	2.02	176,000	2.19	189,000	2.36
52	153,000	1.86	166,000	2.03	180,000	2.20	194,000	2.37
53	156,000	1.87	171,000	2.04	185,000	2.21	199,000	2.38
54	160,000	1.88	175,000	2.05	189,000	2.22	204,000	2.39

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

6½-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
21	.....	.....	.....	.....	46,100	1.47	51,000	1.63
22	.....	.....	.....	.....	50,400	1.53	55,700	1.70
23	.....	.....	49,300	1.43	54,800	1.59	60,400	1.76
24	47,600	1.31	53,400	1.48	59,300	1.65	65,200	1.82
25	51,400	1.36	57,600	1.53	63,800	1.70	70,000	1.87
26	55,300	1.41	61,800	1.58	68,400	1.75	74,900	1.92
27	59,300	1.45	66,100	1.62	72,900	1.79	79,800	1.96
28	63,200	1.49	70,300	1.66	77,500	1.83	84,700	2.00
29	67,200	1.52	74,600	1.70	82,100	1.87	89,600	2.04
30	71,200	1.56	79,000	1.73	86,800	1.90	94,500	2.08
31	75,100	1.59	83,300	1.76	91,400	1.94	99,500	2.11
32	79,200	1.62	87,600	1.79	96,000	1.97	104,000	2.14
33	83,200	1.64	91,900	1.82	101,000	2.00	109,000	2.17
34	87,200	1.67	96,300	1.85	105,000	2.02	114,000	2.20
35	91,300	1.70	101,000	1.87	110,000	2.05	119,000	2.23
36	95,300	1.72	105,000	1.90	115,000	2.07	124,000	2.25
37	99,400	1.74	109,000	1.92	119,000	2.10	130,000	2.28
38	103,000	1.76	114,000	1.94	124,000	2.12	135,000	2.30
39	108,000	1.78	118,000	1.96	129,000	2.14	140,000	2.32
40	112,000	1.80	123,000	1.98	134,000	2.16	145,000	2.34
41	116,000	1.82	127,000	2.00	138,000	2.18	150,000	2.36
42	120,000	1.84	131,000	2.02	143,000	2.20	155,000	2.38
43	124,000	1.85	136,000	2.03	148,000	2.21	160,000	2.39
44	128,000	1.87	140,000	2.05	153,000	2.23	165,000	2.41
45	132,000	1.88	145,000	2.06	157,000	2.24	170,000	2.42
46	136,000	1.90	149,000	2.08	162,000	2.26	175,000	2.44
47	140,000	1.91	154,000	2.09	167,000	2.27	180,000	2.45
48	145,000	1.92	158,000	2.10	172,000	2.29	185,000	2.47
49	149,000	1.94	163,000	2.12	177,000	2.30	190,000	2.48
50	153,000	1.95	167,000	2.13	181,000	2.31	196,000	2.49
51	157,000	1.96	172,000	2.14	186,000	2.32	201,000	2.51
52	161,000	1.97	176,000	2.15	191,000	2.34	206,000	2.52
53	165,000	1.98	180,000	2.16	196,000	2.35	211,000	2.53
54	169,000	1.99	185,000	2.17	200,000	2.36	216,000	2.54

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

7-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
22	.....	.....	.....	.....	.....	.....	56,000	1.71
23	.....	.....	.....	.....	55,200	1.61	61,000	1.78
24	.....	.....	53,700	1.49	59,900	1.67	66,100	1.85
25	51,700	1.37	58,200	1.55	64,700	1.73	71,300	1.91
26	55,800	1.42	62,700	1.60	69,500	1.78	76,400	1.97
27	60,000	1.47	67,200	1.65	74,400	1.83	81,600	2.02
28	64,200	1.51	71,700	1.70	79,300	1.88	86,800	2.07
29	68,400	1.56	76,300	1.74	84,200	1.93	93,100	2.11
30	72,600	1.59	80,900	1.78	89,100	1.97	97,400	2.15
31	76,900	1.63	85,500	1.82	94,100	2.00	103,000	2.19
32	81,200	1.67	90,100	1.85	99,100	2.04	108,000	2.23
33	85,500	1.70	94,800	1.89	104,000	2.07	113,000	2.26
34	89,800	1.73	99,400	1.92	109,000	2.10	119,000	2.29
35	94,100	1.76	104,000	1.95	114,000	2.13	124,000	2.32
36	98,500	1.78	109,000	1.97	119,000	2.16	129,000	2.35
37	103,000	1.81	113,000	2.00	124,000	2.19	135,000	2.38
38	107,000	1.83	118,000	2.02	129,000	2.22	140,000	2.41
39	112,000	1.86	123,000	2.05	134,000	2.24	146,000	2.43
40	116,000	1.88	128,000	2.07	139,000	2.26	151,000	2.45
41	120,000	1.90	132,000	2.09	144,000	2.28	156,000	2.48
42	125,000	1.92	137,000	2.11	150,000	2.30	162,000	2.50
43	129,000	1.94	142,000	2.13	155,000	2.32	167,000	2.52
44	134,000	1.96	147,000	2.15	160,000	2.34	173,000	2.54
45	138,000	1.97	151,000	2.17	165,000	2.36	178,000	2.55
46	142,000	1.99	156,000	2.18	170,000	2.38	184,000	2.57
47	146,000	2.01	161,000	2.20	175,000	2.39	189,000	2.59
48	151,000	2.02	166,000	2.21	180,000	2.41	195,000	2.60
49	156,000	2.04	171,000	2.23	185,000	2.43	200,000	2.62
50	160,000	2.05	175,000	2.24	190,000	2.44	206,000	2.63
51	165,000	2.06	180,000	2.26	196,000	2.45	211,000	2.65
52	169,000	2.07	185,000	2.27	201,000	2.47	217,000	2.66
53	173,000	2.09	190,000	2.28	206,000	2.48	222,000	2.68
54	178,000	2.10	194,000	2.30	211,000	2.49	228,000	2.69
55	182,000	2.11	199,000	2.31	216,000	2.50	233,000	2.70
56	187,000	2.12	204,000	2.32	221,000	2.52	239,000	2.71
57	191,000	2.13	209,000	2.33	227,000	2.53	244,000	2.72
58	196,000	2.14	214,000	2.34	232,000	2.54	250,000	2.74
59	200,000	2.15	218,000	2.35	237,000	2.55	255,000	2.74
60	205,000	2.16	223,000	2.36	242,000	2.56	261,000	2.76

TEE BEAMS

Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

7½-Inch Slab

Depth in Inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
24	.....	.....	.....	.....	.....	.....	66,600	1.87
25	.....	.....	.....	.....	65,200	1.74	72,000	1.94
26	.....	.....	63,000	1.61	70,300	1.81	77,400	2.00
27	60,200	1.48	67,800	1.67	75,400	1.86	83,000	2.06
28	64,700	1.53	72,600	1.72	80,600	1.92	88,500	2.11
29	69,200	1.58	77,500	1.77	85,800	1.97	94,100	2.16
30	73,700	1.62	82,300	1.82	91,000	2.02	99,700	2.21
31	78,200	1.66	87,200	1.86	96,300	2.06	105,000	2.26
32	82,700	1.70	92,100	1.90	102,000	2.10	111,000	2.30
33	87,300	1.74	97,100	1.94	107,000	2.14	117,000	2.34
34	91,900	1.78	102,000	1.98	112,000	2.18	122,000	2.38
35	96,500	1.81	107,000	2.01	118,000	2.21	128,000	2.41
36	101,000	1.84	112,000	2.04	123,000	2.24	134,000	2.44
37	106,000	1.87	117,000	2.07	128,000	2.27	140,000	2.47
38	110,000	1.90	122,000	2.10	134,000	2.30	145,000	2.50
39	115,000	1.92	127,000	2.13	139,000	2.33	151,000	2.53
40	120,000	1.95	132,000	2.16	144,000	2.36	157,000	2.56
41	124,000	1.97	137,000	2.18	150,000	2.38	163,000	2.58
42	129,000	1.99	142,000	2.20	155,000	2.40	168,000	2.61
43	134,000	2.02	147,000	2.22	161,000	2.43	174,000	2.63
44	138,000	2.04	152,000	2.24	166,000	2.45	180,000	2.65
45	143,000	2.06	157,000	2.26	172,000	2.47	186,000	2.68
46	148,000	2.07	162,000	2.28	177,000	2.49	192,000	2.69
47	153,000	2.09	168,000	2.30	183,000	2.51	198,000	2.71
48	157,000	2.11	173,000	2.32	188,000	2.53	203,000	2.73
49	162,000	2.13	178,000	2.34	194,000	2.54	209,000	2.75
50	167,000	2.14	183,000	2.35	199,000	2.56	215,000	2.77
51	172,000	2.16	188,000	2.37	205,000	2.58	221,000	2.78
52	176,000	2.17	193,000	2.38	210,000	2.59	227,000	2.80
53	181,000	2.19	198,000	2.40	215,000	2.61	233,000	2.81
54	186,000	2.20	203,000	2.41	221,000	2.62	239,000	2.83
55	191,000	2.21	209,000	2.42	227,000	2.63	244,000	2.84
56	195,000	2.23	214,000	2.44	232,000	2.65	250,000	2.86
57	200,000	2.24	219,000	2.45	238,000	2.66	256,000	2.87
58	205,000	2.25	224,000	2.46	243,000	2.67	262,000	2.88
59	210,000	2.26	229,000	2.47	249,000	2.68	268,000	2.89
60	214,000	2.27	234,000	2.48	254,000	2.69	274,000	2.91

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

8-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
25	.....	.....	.....	.....	.....	.....	72,300	1.95
26	.....	.....	.....	.....	70,500	1.82	78,100	2.02
27	.....	.....	.....	.....	75,900	1.88	83,900	2.09
28	.....	.....	73,100	1.74	81,400	1.94	89,700	2.15
29	69,500	1.59	78,200	1.79	86,900	2.00	95,600	2.21
30	74,300	1.64	83,300	1.85	92,400	2.05	102,000	2.26
31	79,000	1.69	88,500	1.89	98,000	2.10	107,000	2.31
32	83,800	1.73	93,700	1.94	104,000	2.15	113,000	2.36
33	88,600	1.77	98,900	1.98	109,000	2.19	119,000	2.40
34	93,500	1.81	104,000	2.02	115,000	2.24	125,000	2.45
35	98,400	1.85	109,000	2.06	120,000	2.27	132,000	2.49
36	103,000	1.88	115,000	2.10	126,000	2.31	138,000	2.52
37	108,000	1.92	120,000	2.13	132,000	2.35	144,000	2.56
38	113,000	1.95	125,000	2.16	138,000	2.38	150,000	2.59
39	118,000	1.98	131,000	2.19	143,000	2.41	156,000	2.63
40	123,000	2.01	136,000	2.22	149,000	2.44	162,000	2.66
41	128,000	2.03	141,000	2.25	155,000	2.47	168,000	2.68
42	133,000	2.06	147,000	2.28	161,000	2.50	174,000	2.71
43	138,000	2.09	152,000	2.30	166,000	2.52	180,000	2.74
44	143,000	2.11	157,000	2.33	172,000	2.55	187,000	2.76
45	148,000	2.13	163,000	2.35	178,000	2.57	193,000	2.79
46	153,000	2.15	168,000	2.37	184,000	2.59	199,000	2.81
47	158,000	2.17	174,000	2.39	189,000	2.61	205,000	2.83
48	163,000	2.19	179,000	2.41	195,000	2.63	211,000	2.85
49	168,000	2.21	185,000	2.43	201,000	2.65	218,000	2.87
50	173,000	2.23	190,000	2.45	207,000	2.67	224,000	2.89
51	178,000	2.25	195,000	2.47	213,000	2.69	230,000	2.91
52	183,000	2.26	201,000	2.49	219,000	2.71	236,000	2.93
53	188,000	2.28	206,000	2.50	224,000	2.72	243,000	2.95
54	193,000	2.30	212,000	2.52	230,000	2.74	249,000	2.97
55	198,000	2.31	217,000	2.53	236,000	2.76	255,000	2.98
56	203,000	2.33	223,000	2.55	242,000	2.77	261,000	3.00
57	208,000	2.34	228,000	2.56	248,000	2.79	268,000	3.01
58	213,000	2.35	234,000	2.58	254,000	2.80	274,000	3.02
59	218,000	2.37	239,000	2.59	260,000	2.81	280,000	3.04
60	224,000	2.38	245,000	2.60	266,000	2.83	286,000	3.05

TEE BEAMS

(Bending moment in pound feet and area of steel per foot width)

$f_s = 20{,}000$ $n = 12$

9-Inch Slab

Depth in inches	$f_c = 650$ Moment	Area	$f_c = 700$ Moment	Area	$f_c = 750$ Moment	Area	$f_c = 800$ Moment	Area
28	.....	.....	.....	.....	.....	.....	90,800	2.18
29	.....	.....	.....	.....	87,800	2.02	97,000	2.25
30	.....	.....	.....	.....	93,800	2.09	104,000	2.32
31	.....	.....	89,600	1.92	99,900	2.16	110,000	2.38
32	.....	.....	95,500	1.98	106,000	2.21	117,000	2.45
33	90,000	1.80	101,000	2.04	112,000	2.27	123,000	2.50
34	95,300	1.85	107,000	2.09	119,000	2.32	130,000	2.56
35	101,000	1.90	113,000	2.14	125,000	2.37	137,000	2.61
36	106,000	1.95	119,000	2.18	131,000	2.42	144,000	2.66
37	111,000	1.99	124,000	2.23	137,000	2.46	150,000	2.70
38	117,000	2.03	130,000	2.27	144,000	2.50	157,000	2.74
39	122,000	2.07	136,000	2.31	150,000	2.54	164,000	2.78
40	128,000	2.10	142,000	2.34	157,000	2.58	171,000	2.82
41	133,000	2.14	148,000	2.38	163,000	2.62	177,000	2.86
42	139,000	2.17	154,000	2.41	169,000	2.65	184,000	2.89
43	144,000	2.20	160,000	2.44	176,000	2.68	191,000	2.93
44	150,000	2.23	166,000	2.47	182,000	2.71	198,000	2.96
45	156,000	2.26	172,000	2.50	189,000	2.74	205,000	2.99
46	161,000	2.29	178,000	2.53	195,000	2.77	212,000	3.02
47	167,000	2.31	184,000	2.56	202,000	2.80	219,000	3.05
48	172,000	2.33	190,000	2.58	208,000	2.83	226,000	3.07
49	178,000	2.36	196,000	2.61	215,000	2.85	233,000	3.10
50	184,000	2.38	202,000	2.63	221,000	2.88	240,000	3.12
51	189,000	2.41	208,000	2.65	227,000	2.90	247,000	3.15
52	195,000	2.43	214,000	2.67	234,000	2.92	254,000	3.17
53	201,000	2.45	221,000	2.69	241,000	2.94	261,000	3.19
54	206,000	2.47	227,000	2.72	247,000	2.96	268,000	3.21
55	212,000	2.49	233,000	2.73	254,000	2.98	275,000	3.23
56	217,000	2.50	239,000	2.75	260,000	3.00	282,000	3.25
57	223,000	2.52	245,000	2.77	267,000	3.02	289,000	3.27
58	229,000	2.54	251,000	2.79	273,000	3.04	296,000	3.29
59	234,000	2.56	257,000	2.80	280,000	3.05	303,000	3.30
60	240,000	2.57	264,000	2.82	287,000	3.07	310,000	3.32

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 sq. in. of compression steel)

$f_s = 16{,}000$ $n = 15$

(Depth of compression steel from top of beam = 2 inches)

Depth of beam, inches	fc							
	650	700	750	800	900	1,000	1,100	1,200
8	1,550	1,810	2,070	2,330	2,860	3,380	3,910	4,430
9	2,190	2,510	2,830	3,150	3,780	4,420	5,050	5,690
10	2,860	3,240	3,610	3,980	4,730	5,470	6,220	6,970
11	3,550	3,980	4,410	4,840	5,690	6,550	7,410	8,270
12	4,240	4,730	5,220	5,700	6,680	7,650	8,620	9,590
13	4,950	5,490	6,040	6,580	7,670	8,750	9,840	10,920
14	5,670	6,270	6,870	7,470	8,670	9,870	11,070	12,270
15	6,390	7,050	7,700	8,360	9,670	10,990	12,300	13,620
16	7,110	7,830	8,540	9,250	10,680	12,110	13,540	14,970
17	7,840	8,610	9,380	10,160	11,700	13,240	14,790	16,300
18	8,570	9,400	10,230	11,060	12,720	14,380	16,000	17,700
19	9,310	10,190	11,080	11,970	13,740	15,500	17,300	19,100
20	10,040	10,990	11,930	12,880	14,770	16,700	18,600	20,400
21	10,780	11,790	12,790	13,790	15,800	17,800	19,800	21,800
22	11,520	12,590	13,650	14,710	16,800	19,000	21,100	23,200
23	12,270	13,390	14,500	15,600	17,900	20,100	22.300	24,600
24	13,010	14,190	15,400	16,500	18,900	21,300	23,600	25,900
25	13,760	14,990	16,200	17,500	19,900	22,400	24,900	27,300
26	14,500	15,800	17,100	18,400	21,000	23,500	26,100	28,700
27	15,300	16,600	17,900	19,300	22,000	24,700	27,400	30,100
28	16,000	17,400	18,800	20,200	23,000	25,800	28,700	31,500
29	16,700	18,200	19,700	21,100	24,100	27,000	29,900	32,900
30	17,500	19,000	20,600	22,100	25,100	28,200	31,200	34,300
31	18,200	19,800	21,400	23,000	26,100	29,300	32,500	35,700
32	19,000	20,600	22,300	23,900	27,200	30,500	33,800	37,000
33	19,800	21,400	23,100	24,800	28,200	31,600	35,000	38,400
34	20,500	22,300	24,000	25,800	29,300	32,800	36,300	39,800
35	21,200	23,100	24,900	26,700	30,300	34,000	37,600	41,200
36	22,000	23,900	25,700	27,600	31,400	35,100	38,800	42,600
37	22,800	24,700	26,600	28,500	32,400	36,300	40,100	44,000
38	23,500	25,500	27,500	29,500	33,400	37,400	41,400	45,400
39	24,300	26,300	28,400	30,400	34,500	38,600	42,700	46,800
40	25,000	27,100	29,200	31,300	35,500	39,800	44,000	48,200
41	25,800	27,900	30,100	32,300	36,600	40,900	45,200	49,600
42	26,500	28,700	31,000	33,200	37,600	42,100	46,500	51,000
43	27,300	29,600	31,800	34,100	38,700	43,200	47,800	52,400
44	28,000	30,400	32,700	35,000	39,700	44,400	49,100	53,800
45	28,800	31,200	33,600	36,000	40,800	45,600	50,300	55,100
46	29,500	32,000	34,400	36,900	41,800	46,700	51,600	56,500
47	30,300	32,800	35,300	37,800	42,800	47,900	52,900	57,900
48	31,100	33,600	36,200	38,800	43,900	49,000	54,200	59,300

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 sq. in. of compression steel)

f_s = 18,000 n = 15

(Depth of compression steel from top of beam = 2 inches)

epth of eam, ches	fc							
	650	700	750	800	900	1,000	1,100	1,200
8	1,310	1,570	1,840	2,100	2,620	3,150	3,670	4,200
9	1,950	2,270	2,590	2,900	3,540	4,170	4,810	5,440
10	2,610	2,990	3,360	3,730	4,480	5,230	5,970	6,720
11	3,290	3,720	4,150	4,580	5,440	6,300	7,160	8,020
12	3,990	4,470	4,960	5,440	6,420	7,390	8,360	9,330
13	4,690	5,230	5,770	6,320	7,400	8,490	9,580	10,660
14	5,400	6,000	6,600	7,200	8,400	9,600	10,800	12,000
15	6,120	6,770	7,430	8,090	9,400	10,720	12,030	13,350
16	6,840	7,550	8,270	8,980	10,410	11,830	13,270	14,700
17	7,570	8,340	9,100	9,880	11,430	12,970	14,510	16,000
18	8,300	9,120	9,950	10,780	12,440	14,100	15,800	17,400
19	9,030	9,920	10,800	11,690	13,460	15,200	17,000	18,800
20	9,760	10,710	11,650	12,600	14,490	16,400	18,300	20,200
21	10,500	11,500	12,510	13,510	15,500	17,500	19,500	21,500
22	11,240	12,300	13,360	14,420	16,500	18,700	20,800	22,900
23	11,980	13,100	14,220	15,300	17,500	19,800	22,000	24,300
24	12,730	13,900	15,100	16,300	18,600	21,000	23,300	25,700
25	13,470	14,700	15,900	17,200	19,600	22,100	24,600	27,000
26	14,210	15,500	16,800	18,100	20,700	23,300	25,900	28,400
27	15,000	16,300	17,700	19,000	21,700	24,400	27,100	29,800
28	15,700	17,100	18,500	19,900	22,700	25,600	28,400	31,200
29	16,500	17,900	19,400	20,900	23,800	26,100	29,700	32,600
30	17,200	18,700	20,200	21,800	24,800	27,900	30,900	34,000
31	18,000	19,500	21,100	22,700	25,900	29,000	32,200	35,400
32	18,700	20,300	22,000	23,600	26,900	30,200	33,500	36,700
33	19,500	21,100	22,900	24,500	28,000	31,300	34,700	38,100
34	20,200	22,000	23,700	25,500	29,000	32,500	36,000	39,500
35	20,900	22,800	24,600	26,400	30,000	33,700	37,300	40,900
36	21,700	23,600	25,400	27,300	31,100	34,800	38,600	42,300
37	22,500	24,400	26,300	28,300	32,100	36,000	39,900	43,700
38	23,200	25,200	27,200	29,200	33,100	37,100	41,100	45,100
39	24,000	26,000	28,100	30,100	34,200	38,000	42,400	46,500
40	24,700	26,800	28,900	31,000	35,200	39,500	43,700	47,900
41	25,500	27,600	29,800	32,000	36,300	40,600	44,900	49,300
42	26,200	28,500	30,700	32,900	37,300	41,800	46,200	50,700
43	27,000	29,300	31,500	33,800	38,400	42,900	27,500	52,100
44	27,700	30,100	32,400	34,700	39,400	44,100	28,800	53,400
45	28,500	30,900	33,300	35,700	40,500	45,300	50,100	54,800
46	29,200	31,700	34,200	36,600	41,500	46,400	51,300	56,200
47	30,000	32,500	35,000	37,500	42,600	47,600	52,600	57,600
48	30,800	33,300	35,900	38,500	43,600	48,700	53,900	59,000

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

$f_s = 18{,}000$ $n = 15$

(Depth of compression steel from top of beam = 3 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
10	776	1,060	1,350	1,630	2,200	2,780	3,350	3,920
11	1,360	1,700	2,040	2,380	3,050	3,730	4,410	5,090
12	1,970	2,360	2,760	3,150	3,940	4,720	5,510	6,300
13	2,600	3,050	3,500	3,950	4,850	5,740	6,640	7,540
14	3,250	3,760	4,260	4,770	5,770	6,780	7,790	8,800
15	3,920	4,480	5,040	5,600	6,720	7,840	8,960	10,080
16	4,900	5,210	5,840	6,450	7,680	8,900	10,140	11,370
17	5,280	5,960	6,630	7,300	8,650	9,990	11,340	12,680
18	5,980	6,710	7,440	8,170	9,620	11,080	12,540	14,000
19	6,680	7,470	8,250	9,040	10,610	12,180	13,750	15,300
20	7,390	8,230	9,070	9,920	11,600	13,290	14,970	16,700
21	8,100	9,000	9,900	10,800	12,600	14,400	16,200	18,000
22	8,820	9,770	10,730	11,690	13,600	15,500	17,400	19,300
23	9,540	10,550	11,560	12,580	14,610	16,600	18,700	20,700
24	10,260	11,330	12,400	13,470	15,600	17,800	19,900	22,000
25	10,980	12,110	13,240	14,370	16,700	18,900	21,100	23,400
26	11,710	12,900	14,090	15,300	17,700	20,000	22,400	24,800
27	12,440	13,690	14,940	16,200	18,700	21,200	23,600	26,100
28	13,180	14,470	15,800	17,100	19,700	22,300	24,900	27,500
29	13,910	15,300	16,600	18,000	20,700	23,400	26,100	28,900
30	14,650	16,100	17,500	18,900	21,700	24,600	27,400	30,200
31	15,400	16,900	18,300	19,800	22,800	25,700	28,700	31,600
32	16,100	17,700	19,200	20,700	23,800	26,900	29,900	33,000
33	16,900	18,500	20,000	21,600	24,800	28,000	31,200	34,400
34	17,600	19,300	20,900	22,500	25,800	29,100	32,400	35,700
35	18,300	20,100	21,800	23,500	26,900	30,300	33,700	37,100
36	19,100	20,900	22,600	24,400	27,900	31,400	35,000	38,500
37	19,800	21,700	23,500	25,300	28,900	32,600	36,200	39,900
38	20,600	22,500	24,300	26,200	30,000	33,700	37,500	41,300
39	21,300	23,300	25,200	27,100	31,000	34,900	38,800	42,600
40	22,100	24,100	26,100	28,100	32,100	36,000	40,000	44,000
41	22,800	24,900	26,900	29,000	33,100	37,200	41,300	45,400
42	23,600	25,700	27,800	29,900	34,100	38,300	42,600	46,800
43	24,300	26,500	28,600	30,800	35,200	39,500	43,900	48,200
44	25,100	27,300	29,500	31,700	36,200	40,700	45,100	49,600
45	25,800	28,100	30,400	32,700	37,200	41,800	46,400	51,000
46	26,600	28,900	31,200	33,600	38,300	43,000	47,700	52,300
47	27,300	29,700	32,100	34,500	39,300	44,100	48,900	53,700
48	28,100	30,500	33,000	35,400	40,400	45,300	50,200	55,100
49	28,800	31,300	33,800	36,400	41,400	46,400	51,500	56,500
50	29,600	32,100	34,700	37,300	42,400	47,600	52,700	57,900

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

$f_s = 20{,}000$ $n = 15$

(Depth of compression steel from top of beam = 3 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
10	449	735	1,020	1,310	1,880	2,450	3,020	3,590
11	1,020	1,360	1,700	2,040	2,710	3,390	4,070	4,750
12	1,620	2,010	2,410	2,800	3,590	4,370	5,160	5,950
13	2,240	2,690	3,140	3,590	4,490	5,380	6,280	7,180
14	2,890	3,390	3,900	4,400	5,410	6,420	7,420	8,430
15	3,550	4,110	4,670	5,230	6,450	7,470	8,590	9,710
16	4,220	4,830	5,450	6,070	7,300	8,530	9,760	10,990
17	4,900	5,570	6,240	6,920	8,270	9,610	10,950	12,300
18	5,590	6,320	7,050	7,780	9,240	10,690	12,150	13,610
19	6,290	7,070	7,860	8,640	10,220	11,790	13,370	14,930
20	6,990	7,830	8,680	9,520	11,200	12,890	14,580	16,300
21	7,700	8,600	9,500	10,400	12,200	14,000	15,800	17,600
22	8,410	9,370	10,330	11,280	13,200	15,100	17,000	18,900
23	9,130	10,140	11,160	12,170	14,200	16,200	18,300	20,300
24	9,850	10,920	11,960	13,070	15,200	17,300	19,500	21,600
25	10,570	11,700	12,830	13,960	16,200	18,500	20,700	23,000
26	11,300	12,490	13,670	14,860	17,200	19,600	22,000	24,300
27	12,030	13,270	14,520	15,800	18,300	20,700	23,200	25,700
28	12,760	14,060	15,400	16,700	19,300	21,900	24,500	27,100
29	13,490	14,850	16,200	17,600	20,300	23,000	25,700	28,400
30	14,230	15,600	17,100	18,500	21,300	24,100	27,000	29,800
31	14,960	16,400	17,900	19,400	22,300	25,300	28,200	31,200
32	15,700	17,200	18,800	20,300	23,400	26,400	29,500	32,500
33	16,400	18,000	19,600	21,200	24,400	27,600	30,800	33,900
34	17,200	18,800	20,500	22,100	25,400	28,700	32,000	35,300
35	17,900	19,600	21,300	23,000	26,500	29,900	33,300	36,700
36	18,700	20,400	22,200	24,000	27,500	31,100	34,500	38,100
37	19,400	21,200	23,100	24,900	28,500	32,200	35,800	39,400
38	20,200	22,000	23,900	25,800	29,600	33,300	37,100	40,800
39	20,900	22,800	24,800	26,700	30,600	34,500	38,300	42,200
40	21,600	23,600	25,600	27,600	31,600	35,600	39,600	43,600
41	22,400	24,400	26,500	28,600	32,700	36,800	40,900	45,000
42	23,100	25,200	27,400	29,500	33,700	37,900	42,100	46,400
43	23,900	26,100	28,200	30,400	34,700	39,100	43,400	47,700
44	24,600	26,800	29,100	31,300	35,800	40,200	44,700	49,100
45	25,400	27,700	29,900	32,200	36,800	41,400	46,000	50,500
46	26,100	28,500	30,800	33,200	37,800	42,500	47,200	51,900
47	26,900	29,300	31,700	34,100	38,900	43,700	48,500	53,300
48	27,600	30,100	32,500	35,000	39,900	44,800	49,800	54,700
49	28,400	30,900	33,400	35,900	41,000	46,000	51,000	56,100
50	29,100	31,700	34,300	36,800	42,000	47,200	52,300	57,400

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

$f_s = 18{,}000$ $n = 15$

(Depth of compression steel from top of beam = 3 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
10	776	1,060	1,350	1,630	2,200	2,780	3,350	3,920
11	1,360	1,700	2,040	2,380	3,050	3,730	4,410	5,090
12	1,970	2,360	2,760	3,150	3,940	4,720	5,510	6,300
13	2,600	3,050	3,500	3,950	4,850	5,740	6,640	7,540
14	3,250	3,760	4,260	4,770	5,770	6,780	7,790	8,800
15	3,920	4,480	5,040	5,600	6,720	7,840	8,960	10,080
16	4,900	5,210	5,840	6,450	7,680	8,900	10,140	11,370
17	5,280	5,960	6,630	7,300	8,650	9,990	11,340	12,680
18	5,980	6,710	7,440	8,170	9,620	11,080	12,540	14,000
19	6,680	7,470	8,250	9,040	10,610	12,180	13,750	15,300
20	7,390	8,230	9,070	9,920	11,600	13,290	14,970	16,700
21	8,100	9,000	9,900	10,800	12,600	14,400	16,200	18,000
22	8,820	9,770	10,730	11,690	13,600	15,500	17,400	19,300
23	9,540	10,550	11,560	12,580	14,610	16,600	18,700	20,700
24	10,260	11,330	12,400	13,470	15,600	17,800	19,900	22,000
25	10,980	12,110	13,240	14,370	16,700	18,900	21,100	23,400
26	11,710	12,900	14,090	15,300	17,700	20,000	22,400	24,800
27	12,440	13,690	14,940	16,200	18,700	21,200	23,600	26,100
28	13,180	14,470	15,800	17,100	19,700	22,300	24,900	27,500
29	13,910	15,300	16,600	18,000	20,700	23,400	26,100	28,900
30	14,650	16,100	17,500	18,900	21,700	24,600	27,400	30,200
31	15,400	16,900	18,300	19,800	22,800	25,700	28,700	31,600
32	16,100	17,700	19,200	20,700	23,800	26,900	29,900	33,000
33	16,900	18,500	20,000	21,600	24,800	28,000	31,200	34,400
34	17,600	19,300	20,900	22,500	25,800	29,100	32,400	35,700
35	18,300	20,100	21,800	23,500	26,900	30,300	33,700	37,100
36	19,100	20,900	22,600	24,400	27,900	31,400	35,000	38,500
37	19,800	21,700	23,500	25,300	28,900	32,600	36,200	39,900
38	20,600	22,500	24,300	26,200	30,000	33,700	37,500	41,300
39	21,300	23,300	25,200	27,100	31,000	34,900	38,800	42,600
40	22,100	24,100	26,100	28,100	32,100	36,000	40,000	44,000
41	22,800	24,900	26,900	29,000	33,100	37,200	41,300	45,400
42	23,600	25,700	27,800	29,900	34,100	38,300	42,600	46,800
43	24,300	26,500	28,600	30,800	35,200	39,500	43,900	48,200
44	25,100	27,300	29,500	31,700	36,200	40,700	45,100	49,600
45	25,800	28,100	30,400	32,700	37,200	41,800	46,400	51,000
46	26,600	28,900	31,200	33,600	38,300	43,000	47,700	52,300
47	27,300	29,700	32,100	34,500	39,300	44,100	48,900	53,700
48	28,100	30,500	33,000	35,400	40,400	45,300	50,200	55,100
49	28,800	31,300	33,800	36,400	41,400	46,400	51,500	56,500
50	29,600	32,100	34,700	37,300	42,400	47,600	52,700	57,900

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

$f_s = 20{,}000$ $n = 15$

(Depth of compression steel from top of beam = 3 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
10	449	735	1,020	1,310	1,880	2,450	3,020	3,590
11	1,020	1,360	1,700	2,040	2,710	3,390	4,070	4,750
12	1,620	2,010	2,410	2,800	3,590	4,370	5,160	5,950
13	2,240	2,690	3,140	3,590	4,490	5,380	6,280	7,180
14	2,890	3,390	3,900	4,400	5,410	6,420	7,420	8,430
15	3,550	4,110	4,670	5,230	6,450	7,470	8,590	9,710
16	4,220	4,830	5,450	6,070	7,300	8,530	9,760	10,990
17	4,900	5,570	6,240	6,920	8,270	9,610	10,950	12,300
18	5,590	6,320	7,050	7,780	9,240	10,690	12,150	13,610
19	6,290	7,070	7,860	8,640	10,220	11,790	13,370	14,930
20	6,990	7,830	8,680	9,520	11,200	12,890	14,580	16,300
21	7,700	8,600	9,500	10,400	12,200	14,000	15,800	17,600
22	8,410	9,370	10,330	11,280	13,200	15,100	17,000	18,900
23	9,130	10,140	11,160	12,170	14,200	16,200	18,300	20,300
24	9,850	10,920	11,960	13,070	15,200	17,300	19,500	21,600
25	10,570	11,700	12,830	13,960	16,200	18,500	20,700	23,000
26	11,300	12,490	13,670	14,860	17,200	19,600	22,000	24,300
27	12,030	13,270	14,520	15,800	18,300	20,700	23,200	25,700
28	12,760	14,060	15,400	16,700	19,300	21,900	24,500	27,100
29	13,490	14,850	16,200	17,600	20,300	23,000	25,700	28,400
30	14,230	15,600	17,100	18,500	21,300	24,100	27,000	29,800
31	14,960	16,400	17,900	19,400	22,300	25,300	28,200	31,200
32	15,700	17,200	18,800	20,300	23,400	26,400	29,500	32,500
33	16,400	18,000	19,600	21,200	24,400	27,600	30,800	33,900
34	17,200	18,800	20,500	22,100	25,400	28,700	32,000	35,300
35	17,900	19,600	21,300	23,000	26,500	29,900	33,300	36,700
36	18,700	20,400	22,200	24,000	27,500	31,100	34,500	38,100
37	19,400	21,200	23,100	24,900	28,500	32,200	35,800	39,400
38	20,200	22,000	23,900	25,800	29,600	33,300	37,100	40,800
39	20,900	22,800	24,800	26,700	30,600	34,500	38,300	42,200
40	21,600	23,600	25,600	27,600	31,600	35,600	39,600	43,600
41	22,400	24,400	26,500	28,600	32,700	36,800	40,900	45,000
42	23,100	25,200	27,400	29,500	33,700	37,900	42,100	46,400
43	23,900	26,100	28,200	30,400	34,700	39,100	43,400	47,700
44	24,600	26,800	29,100	31,300	35,800	40,200	44,700	49,100
45	25,400	27,700	29,900	32,200	36,800	41,400	46,000	50,500
46	26,100	28,500	30,800	33,200	37,800	42,500	47,200	51,900
47	26,900	29,300	31,700	34,100	38,900	43,700	48,500	53,300
48	27,600	30,100	32,500	35,000	39,900	44,800	49,800	54,700
49	28,400	30,900	33,400	35,900	41,000	46,000	51,000	56,100
50	29,100	31,700	34,300	36,800	42,000	47,200	52,300	57,400

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

$f_s = 16{,}000$ $n = 12$

(Depth of compression steel from top of beam = 2 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
8	847	1,050	1,260	1,470	1,880	2,290	2,700	3,120
9	1,340	1,590	1,840	2,090	2,590	3,090	3,590	4,090
10	1,860	2,150	2,440	2,740	3,320	3,910	4,500	5,080
11	2,390	2,720	3,060	3,400	4,070	4,750	5,420	6,100
12	2,930	3,310	3,690	4,070	4,840	5,600	6,360	7,130
13	3,480	3,900	4,330	4,760	5,610	6,460	7,320	8,170
14	4,030	4,500	4,980	5,450	6,390	7,330	8,270	9,220
15	4,590	5,110	5,630	6,140	7,180	8,210	9,240	10,270
16	5,160	5,720	6,280	6,840	7,970	9,090	10,210	11,330
17	5,730	6,330	6,940	7,550	8,760	9,970	11,190	12,400
18	6,300	6,950	7,600	8,260	9,560	10,860	12,170	13,470
19	6,870	7,570	8,270	8,970	10,360	11,750	13,150	14,540
20	7,450	8,190	8,940	9,680	11,160	12,650	14,130	15,600
21	8,030	8,820	9,610	10,390	11,970	13,550	15,100	16,700
22	8,610	9,440	10,280	11,110	12,780	14,440	16,100	17,800
23	9,190	10,070	10,950	11,830	13,590	15,300	17,100	18,900
24	9,780	10,700	11,620	12,550	14,400	16,200	18,100	19,900
25	10,360	11,330	12,300	13,270	15,200	17,200	19,100	21,000
26	10,940	11,960	12,970	13,990	16,000	18,100	20,100	22,100
27	11,530	12,590	13,650	14,720	16,800	19,000	21,100	23,200
28	12,110	13,220	14,330	15,400	17,700	19,900	22,100	24,300
29	12,700	13,850	15,000	16,200	18,500	20,800	23,100	25,400
30	13,290	14,480	15,700	16,900	19,300	21,770	24,100	26,500
31	13,880	15,100	16,400	17,600	20,100	22,600	25,100	27,600
32	14,460	15,700	17,000	18,300	20,900	23,500	26,100	28,600
33	15,000	16,400	17,700	19,100	21,700	24,400	27,100	29,700
34	15,600	17,000	18,400	19,800	22,500	25,300	28,100	30,800
35	16,200	17,700	19,100	20,500	23,400	26,200	29,100	31,900
36	16,800	18,300	19,800	21,200	24,200	27,100	30,100	33,000
37	17,400	18,900	20,400	22,000	25,000	28,000	31,100	34,100
38	18,000	19,600	21,100	22,700	25,800	28,900	32,100	35,300
39	18,600	20,200	21,800	23,400	26,600	29,900	33,100	36,300
40	19,200	20,800	22,500	24,200	27,500	30,800	34,100	37,400
41	19,800	21,500	23,200	24,900	28,300	31,700	35,100	38,500
42	20,400	22,100	23,900	25,600	29,100	32,600	36,100	39,600
43	21,000	22,800	24,500	26,300	29,900	33,500	37,100	40,700
44	21,600	23,400	25,200	27,100	30,700	34,400	38,100	41,800
45	22,100	24,000	25,900	27,800	31,600	35,300	39,100	42,800
46	22,700	24,700	26,600	28,500	32,400	36,200	40,100	44,000
47	23,300	25,300	27,300	29,300	33,200	37,100	41,100	45,100
48	23,900	25,900	28,000	30,000	34,100	38,100	42,100	46,100

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

$f_s = 18{,}000$ $n = 12$

(Depth of compression steel from top of beam = 2 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
8	619	825	1,010	1,240	1,650	2,060	2,470	2,890
9	1,100	1,350	1,600	1,840	2,350	2,850	3,350	3,850
10	1,610	1,910	2,200	2,490	3,080	3,670	4,250	4,840
11	2,140	2,470	2,810	3,150	3,820	4,500	5,170	5,850
12	2,680	3,060	3,440	3,820	4,580	5,350	6,110	6,870
13	3,220	3,650	4,070	4,500	5,350	6,200	7,060	7,910
14	3,770	4,240	4,710	5,180	6,130	7,070	8,010	8,960
15	4,330	4,850	5,360	5,880	6,910	7,940	8,980	10,010
16	4,890	5,450	6,020	6,580	7,700	8,820	9,950	11,070
17	5,460	6,070	6,670	7,280	8,490	9,710	10,920	12,130
18	6,030	6,680	7,330	7,980	9,290	10,590	11,900	13,200
19	6,600	7,300	8,000	8,690	10,090	11,480	12,880	14,270
20	7,180	7,920	8,660	9,400	10,890	12,370	13,860	15,300
21	7,750	8,540	9,330	10,120	11,690	13,270	14,840	16,400
22	8,330	9,170	10,000	10,840	12,500	14,170	15,800	17,500
23	8,910	9,800	10,670	11,550	13,310	15,100	16,800	18,600
24	9,490	10,420	11,340	12,270	14,120	16,000	17,800	19,700
25	10,080	11,050	12,020	12,990	14,930	16,900	18,800	20,700
26	10,660	11,680	12,690	13,710	15,700	17,800	19,800	21,800
27	11,240	12,310	13,370	14,430	16,500	18,700	20,800	22,900
28	11,830	12,940	14,040	15,200	17,400	19,600	21,800	24,000
29	12,420	13,570	14,720	15,900	18,200	20,500	22,800	25,100
30	13,000	14,200	15,400	16,600	19,000	21,400	23,800	26,200
31	13,590	14,830	16,100	17,300	19,800	22,300	24,800	27,300
32	14,180	15,500	16,800	18,000	20,600	23,200	25,800	28,400
33	14,770	16,100	17,400	18,800	21,500	24,100	26,800	29,400
34	15,400	16,700	18,100	19,500	22,300	25,000	27,800	30,500
35	15,900	17,400	18,800	20,200	23,100	25,900	28,800	31,600
36	16,500	18,000	19,500	21,000	23,900	26,800	29,800	32,700
37	17,100	18,600	20,200	21,700	24,700	27,700	30,800	33,800
38	17,700	19,300	20,800	22,400	25,500	28,700	31,800	34,900
39	18,300	19,900	21,500	23,100	26,300	29,600	32,800	36,000
40	18,900	20,500	22,200	23,900	27,200	30,500	33,800	37,100
41	19,500	21,200	22,900	24,600	28,000	31,400	34,800	38,200
42	20,100	21,800	23,600	25,300	28,800	32,300	35,800	39,300
43	20,700	22,500	24,300	26,000	29,600	33,200	36,800	40,400
44	21,300	23,100	24,900	26,800	30,500	34,100	37,800	41,500
45	21,900	23,700	25,600	27,500	31,300	35,000	38,800	42,600
46	22,400	24,400	26,300	28,200	32,100	35,900	39,800	43,700
47	23,000	25,000	27,000	29,000	32,900	36,900	40,800	44,800
48	23,600	25,700	27,700	29,700	33,700	37,800	41,800	45,900

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

$f_s = 20{,}000$ $n = 12$

(Depth of compression steel from top of beam = 2 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
8	389	596	802	1,010	1,420	1,830	2,240	2,660
9	867	1,120	1,370	1,620	2,110	2,610	3,110	3,610
10	1,370	1,660	1,960	2,250	2,840	3,420	4,010	4,590
11	1,890	2,220	2,560	2,900	3,570	4,250	4,920	5,600
12	2,420	2,810	3,180	3,560	4,330	5,090	5,860	6,620
13	2,960	3,390	3,810	4,240	5,090	5,950	6,890	7,650
14	3,510	3,980	4,450	4,920	5,870	6,810	7,750	8,700
15	4,060	4,580	5,100	5,610	6,650	7,680	8,710	9,740
16	4,620	5,190	5,750	6,310	7,430	8,550	9,680	10,800
17	5,190	5,800	6,400	7,010	8,220	9,440	10,650	11,860
18	5,760	6,410	7,060	7,710	9,020	10,320	11,620	12,930
19	6,330	7,020	7,720	8,420	9,810	11,210	12,600	14,000
20	6,900	7,640	8,390	9,130	10,610	12,100	13,580	15,100
21	7,480	8,270	9,050	9,840	11,420	12,990	14,570	16,100
22	8,060	8,890	9,720	10,550	12,220	13,890	15,600	17,200
23	8,630	9,510	10,400	11,290	13,030	14,780	16,500	18,300
24	9,210	10,140	11,060	11,990	13,840	15,700	17,500	19,400
25	9,800	10,770	11,730	12,710	14,640	16,600	18,500	20,500
26	10,380	11,390	12,410	13,420	15,500	17,500	19,500	21,600
27	10,960	12,020	13,090	14,140	16,300	18,400	20,500	22,600
28	11,550	12,650	13,760	14,860	17,100	19,300	21,500	23,700
29	12,130	13,280	14,440	15,600	17,900	20,200	22,500	24,800
30	12,720	13,330	15,100	16,300	18,700	21,100	23,500	25,900
31	13,300	14,550	15,800	17,000	19,500	22,000	24,500	27,000
32	13,890	15,200	16,500	17,800	20,300	22,900	25,500	28,100
33	14,480	15,800	17,200	18,500	21,200	23,800	26,500	29,200
34	15,100	16,400	17,800	19,200	22,000	24,700	27,500	30,300
35	15,700	17,100	18,500	19,900	22,800	25,600	28,500	31,300
36	16,200	17,700	19,200	20,700	23,600	26,500	29,500	32,400
37	16,800	18,400	19,900	21,400	24,400	27,500	30,500	33,500
38	17,400	19,000	20,600	22,100	25,300	28,400	31,500	34,600
39	18,000	19,600	21,300	22,800	26,100	29,300	32,500	35,700
40	18,600	20,300	21,900	23,600	26,900	30,200	33,500	36,800
41	19,200	20,900	22,600	24,300	27,700	31,100	34,500	37,900
42	19,800	21,500	23,300	25,000	28,500	32,000	35,500	39,000
43	20,400	22,200	24,000	25,700	29,300	32,900	36,500	40,100
44	21,000	22,800	24,700	26,500	30,200	33,800	37,500	41,200
45	21,600	23,400	25,300	27,200	31,000	34,800	38,500	42,300
46	22,100	24,100	26,000	27,900	31,800	35,700	39,500	43,400
47	22,700	24,700	26,700	28,700	32,600	25,600	40,500	44,500
48	23,300	25,400	27,400	29,400	33,400	37,500	41,500	45,600

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

f_s = 16,000 n = 12

(Depth of compression steel from top of beam = 3 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
10	353	577	802	1,030	1,470	1,920	2,370	2,880
11	800	1,070	1,330	1,600	2,130	2,670	3,200	3,730
12	1,270	1,580	1,890	2,200	2,820	3,440	4,060	4,670
13	1,760	2,120	2,470	2,820	3,520	4,230	4,940	5,640
14	2,270	2,660	3,060	3,460	4,250	5,040	5,830	6,630
15	2,790	3,230	3,670	4,110	4,990	5,870	6,750	7,630
16	3,310	3,800	4,280	4,770	5,730	6,700	7,670	8,640
17	3,850	4,380	4,910	5,430	6,490	7,550	8,600	9,660
18	4,390	4,960	5,540	6,110	7,260	8,400	9,550	10,690
19	4,940	5,560	6,170	6,790	8,030	9,260	10,500	11,730
20	5,490	6,160	6,820	7,480	8,800	10,130	11,450	12,780
21	6,050	6,760	7,460	8,170	9,580	11,000	12,410	13,830
22	6,610	7,360	8,110	8,870	10,370	11,870	13,380	14,880
23	7,170	7,970	8,770	9,560	11,160	12,750	14,340	15,900
24	7,740	8,580	9,420	10,270	11,950	13,630	15,300	17,000
25	8,310	9,190	10,080	10,970	12,750	14,520	16,300	18,100
26	8,880	9,810	10,740	11,680	13,540	15,400	17,300	19,100
27	9,450	10,430	11,410	12,390	14,340	16,300	18,200	20,200
28	10,030	11,050	12,070	13,090	15,100	17,200	19,200	21,300
29	10,600	11,670	12,740	13,810	15,900	18,100	20,200	22,300
30	11,180	12,290	13,400	14,520	16,700	19,000	21,200	23,400
31	11,760	12,920	14,080	15,200	17,600	19,900	22,200	24,500
32	12,330	13,540	14,740	15,900	18,400	20,800	23,200	25,600
33	12,920	14,170	15,400	16,700	19,200	21,700	24,200	26,700
34	13,500	14,800	16,100	17,400	20,000	22,600	25,200	27,800
35	14,080	15,400	16,800	18,100	20,800	23,500	26,100	28,800
36	14,660	16,100	17,400	18,800	21,600	24,400	27,100	29,900
37	15,200	16,700	18,100	19,500	22,400	25,300	28,100	31,000
38	15,800	17,300	18,800	20,300	23,200	26,200	29,100	32,100
39	16,400	17,900	19,500	21,000	24,000	27,100	30,100	33,200
40	17,000	18,600	20,100	21,700	24,800	28,000	31,100	34,300
41	17,600	19,200	20,800	22,400	25,700	28,900	32,100	35,300
42	18,200	19,800	21,500	23,200	26,500	29,800	33,100	36,400
43	18,800	20,500	22,200	23,900	27,300	30,700	34,100	37,500
44	19,300	21,100	22,800	24,600	28,100	31,600	35,100	38,600
45	19,900	21,700	23,500	25,300	28,900	32,500	36,100	39,700
46	20,500	22,400	24,200	26,000	29,700	33,400	37,100	40,800
47	21,100	23,000	24,900	26,800	30,500	34,300	38,100	41,900
48	21,700	23,600	25,600	27,500	31,400	35,200	39,100	43,000
49	22,300	24,300	26,200	28,200	32,200	36,100	40,100	44,100
50	22,900	24,900	26,900	28,900	33,000	37,000	41,100	45,200

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

f_s = 18,000 n = 12

(Depth of compression steel from top of beam = 3 inches)

Depth of beam, inches	f_c							
	650	700	750	800	900	1,000	1,100	1,200
10	322	257	481	706	1,150	1,600	2,050	2,500
11	467	733	1,000	1,270	1,800	2,330	2,870	3,400
12	932	1,240	1,550	1,860	2,470	3,090	3,710	4,330
13	1,410	1,760	2,110	2,470	3,170	3,880	4,580	5,290
14	1,910	2,300	2,700	3,100	3,890	4,680	5,470	6,270
15	2,420	2,860	3,300	3,740	4,620	5,500	6,380	7,260
16	2,940	3,430	3,910	4,390	5,360	6.330	7,300	8,270
17	3,470	4,000	4,530	5,060	6,110	7,170	8,230	9,280
18	4,010	4,580	5,160	5,730	6,870	8,020	9,170	10,310
19	4,550	5,170	5,790	6,410	7,640	8,880	10,110	11,350
20	5,100	5,760	6,430	7,090	8,410	9,740	11,060	12,390
21	5,660	6,360	7,070	7,780	9,190	10,610	12,020	13,440
22	6,210	6,970	7,720	8,470	9,970	11,480	12,980	14,490
23	6,770	7,570	8,370	9,170	10,760	12,350	13,950	15,500
24	7,340	8,180	9,030	9,860	11,550	13,230	14,920	16,600
25	7,900	8,790	9,680	10,570	12,340	14,120	15,900	17,700
26	8,470	9,410	10,340	11,270	13,140	15,000	16,900	18,700
27	9,040	10,020	11,000	11,980	13,930	15,900	17,800	19,800
28	9,620	10,640	11,660	12,690	14,730	16,800	18,800	20,900
29	10,190	11,260	12,330	13,390	15,500	17,700	19,800	21,900
30	10,770	11,880	12,990	14,110	16,300	18,600	20,800	23,000
31	11,340	12,500	13,660	14,820	17,100	19,500	21,800	24,100
32	11,920	13,130	14,320	15,500	17,900	20,400	22,800	25,200
33	12,500	13,750	15,000	16,200	18,800	21,200	23,800	26,200
34	13,080	14,370	15,700	17,000	19,600	22,100	24,700	27,300
35	13,660	15,000	16,300	17,700	20,400	23,000	25,700	28,400
36	14,250	15,600	17,000	18,400	21,200	23,900	26,700	29,500
37	14,820	16,300	17,700	19,100	22,000	24,800	27,700	30,600
38	15,400	16,900	18,400	19,800	22,800	25,700	28,700	31,700
39	16,000	17,500	19,000	20,600	23,600	26,700	29,700	32,700
40	16,600	18,100	19,700	21,300	24,400	27,600	30,700	33,800
41	17,200	18,800	20,400	22,000	25,200	28,500	31,700	34,900
42	17,700	19,400	21,100	22,700	26,000	29,400	32,700	36,000
43	18,300	20,000	21,700	23,400	26,900	30,300	33,700	37,100
44	18,900	20,700	22,400	24,200	27,700	31,200	34,700	38,200
45	19,500	21,300	23,100	24,900	28,500	32,100	35,700	39,300
46	20,100	21,900	23,800	25,600	29,300	33,000	36,700	40,400
47	20,700	22,600	24,500	26,300	30,100	33,900	37,700	41,400
48	21,300	23,200	25,100	27,100	30,900	34,800	38,700	42,500
49	21,900	23,800	25,800	27,800	31,800	35,700	39,700	43,600
50	22,400	24,500	26,500	28,500	32,600	36,60)	40,700	44,700

BEAMS WITH COMPRESSION REINFORCEMENT

(Moments of resistance of 1 square inch of compression steel)

$f_s = 20{,}000$ $n = 12$

(Depth of compression steel from top of beam = 3 inches)

epth of eam, ches	f_c 650	700	750	800	900	1,000	1,100	1,200
10	.....	.....	161	385	834	1,280	1,730	2,180
11	142	400	667	933	1,470	2,000	2,530	3,070
12	584	894	1,200	1,510	2,130	2,750	3,370	3,990
13	1,060	1,410	1,760	2,110	2,820	3,530	4,230	4,930
14	1,550	1,940	2,340	2,740	3,530	4,320	5,110	5,910
15	2,050	2,490	2,930	3,370	4,250	5,130	6,010	6,890
16	2,570	3,050	3,540	4,020	4,990	5,960	6,930	7,890
17	3,090	3,620	4,150	4,680	5,750	6,790	7,850	8,910
18	3,630	4,200	4,770	5,350	6,490	7,640	8,780	9,930
19	4,170	4,780	5,400	6,020	7,260	8,490	9,730	10,960
20	4,710	5,380	6,040	6,700	8,020	9,350	10,670	12,000
21	5,260	5,970	6,680	7,380	8,800	10,210	11,630	13,040
22	5,820	6,570	7,320	8,070	9,580	11,080	12,590	14,090
23	6,380	7,170	7,970	8,770	10,360	11,960	13,450	15,100
24	6,940	7,780	8,620	9,460	11,150	12,830	14,520	16,200
25	7,500	8,390	9,280	10,160	11,940	13,710	15,500	17,300
26	8,070	9,000	9,930	10,860	12,730	14,590	16,500	18,300
27	8,640	9,610	10,590	11,570	13,520	15,500	17,400	19,400
28	9,210	10,230	11,250	12,280	14,320	16,400	18,400	20,500
29	9,780	10,850	11,920	12,980	15,100	17,300	19,400	21,500
30	10,350	11,470	12,580	13,690	15,900	18,100	20,400	22,600
31	10,930	12,090	13,250	14,410	16,700	19,000	21,400	23,700
32	11,500	12,710	13,910	15,100	17,500	19,900	22,400	24,800
33	12,080	13,330	14,590	15,800	18,300	20,800	23,300	25,800
34	12,660	13,950	15,300	16,500	19,100	21,700	24,300	26,900
35	13,240	14,580	15,900	17,300	20,000	22,600	25,300	28,000
36	13,820	15,200	16,600	18,000	20,800	23,500	26,300	29,100
37	14,400	15,800	17,300	18,700	21,600	24,400	27,300	30,200
38	15,000	16,500	17,900	19,400	22,400	25,300	28,300	31,200
39	15,600	17,100	18,600	20,100	23,200	26,200	29,300	32,300
40	16,200	17,700	19,300	20,900	24,000	27,100	30,300	33,400
41	16,700	18,300	20,000	21,600	24,800	28,000	31,300	34,500
42	17,300	19,000	20,600	22,300	25,600	28,900	32,300	35,600
43	17,900	19,600	21,300	23,000	26,400	29,800	33,300	36,700
44	18,500	20,200	22,000	23,700	27,200	30,800	34,300	37,700
45	19,100	20,900	22,700	24,500	28,100	31,700	35,300	38,800
46	19,600	21,500	23,300	25,200	28,900	32,600	36,200	39,900
47	20,200	22,100	24,000	25,900	29,700	33,500	37,200	41,000
48	20,800	22,800	24,700	26,600	30,500	34,400	38,200	42,100
49	21,400	23,400	25,400	27,400	31,300	35,300	39,200	43,200
50	22,000	24,000	26,100	28,100	32,100	36,200	40,200	44,300

SQUARE COLUMNS

(Total load in pounds on net area)
(No reinforcement)

Size of column in ins.	Area of column in sq. ins.	f_c 400	450	500	550	600	650	700	750
10	100	40,000	45,000	50,000	55,000	60,000	65,000	70,000	75,000
11	121	48,400	54,400	60,500	66,500	72,600	78,600	84,700	90,700
12	144	57,600	64,800	72,000	79,200	86,400	93,600	100,800	108,000
13	169	67,600	76,600	84,500	92,900	101,400	109,800	118,300	126,700
14	196	78,400	88.200	98,000	107,800	117,600	127,400	137,200	147,000
15	225	90,000	101,200	112,500	123,700	135,000	146,200	157,500	168,700
16	256	102,400	115,200	128,000	140,800	153,600	166,400	179,200	192,000
17	289	115,600	130,000	144,500	159,000	173,400	187,800	202,300	216,700
18	324	129,600	145,800	162,000	178,200	194,400	210,600	226,800	243,000
19	361	144,400	162,400	180,500	198,500	216,600	234,600	252,700	270,700
20	400	160,000	180,000	200,000	220,000	240,000	260,000	280,000	300,000
21	441	176,400	198,400	220,500	242,500	264,600	286,600	308,700	330,700
22	484	193,600	217,800	242,000	266,200	290,400	314,600	338,800	363,000
23	529	211,600	238,000	264,500	290,900	317,400	343,800	370,300	396,700
24	576	230,400	259,200	288,000	316,800	345,600	374,400	403,200	432,000
25	625	250,000	281,200	312,500	343,700	375,000	406,200	437,500	468,700
26	676	270,400	304,200	338,000	371.800	405,600	439,400	473,200	507,000
27	729	291,600	328,000	364,500	400,900	437,400	473,800	510,000	547,000
28	784	313,600	352,800	392,000	431,200	470,400	510,000	549,000	588,000
29	841	336,400	378,400	420,500	462,500	505,000	547,000	589,000	631,000
30	900	360,000	405,000	450,000	495,000	540,000	585,000	630,000	675,000
31	961	384,400	432,400	480,500	528,000	577,000	625,000	673,000	721,000
32	1,024	409,600	460,800	512,000	563,000	614,000	666,000	717,000	768,000
33	1,089	435,600	490,000	544,000	599,000	653,000	708,000	762,000	817,000
34	1,165	462,400	520,000	578,000	636,000	694,000	751,000	809,000	867,000
35	1,225	490,000	551,000	612,000	674,000	735,000	796,000	857,000	919,000
36	1,296	518,000	583,000	648,000	713,000	778,000	842,000	907,000	972,000
37	1,369	548,000	616,000	684,000	753,000	821,000	890,000	958,000	1,027,000
38	1,444	578,000	650,000	722,000	794,000	866,000	939,000	1,011,000	1,083,000
39	1,521	608,000	684,000	760,000	837,000	913,000	989,000	1,065,000	1,141,000
40	1,600	640,000	720,000	800,000	880,000	960,000	1,040,000	1,120,000	1,200,000
41	1,681	672,000	756,000	840,000	925,000	1,009,000	1,093,000	1,177,000	1,261,000
42	1,764	706,000	794,000	882,000	970,000	1,058,000	1,147,000	1,235,000	1,323,000
43	1,849	740,000	832,000	924,000	1,017,000	1,109,000	1,202,000	1,294,000	1,387,000
44	1,936	774,000	871,000	968,000	1,065,000	1,162,000	1,258,000	1,355,000	1,452,000
45	2,025	810,000	911,000	1,012,000	1,114,000	1,215,000	1,316,000	1,417,000	1,519,000
46	2,116	846,000	952,000	1,058,000	1,164,000	1,270,000	1,375,000	1,481,000	1,587,000
47	2,209	884,000	994,000	1,104,000	1,215,000	1,325,000	1,436,000	1,546,000	1,657,000
48	2,304	922,000	1,037,000	1,152,000	1,267,000	1,382,000	1,498,000	1,613,000	1,728,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 400$

Size of column in inches	Area of column in sq. inches	½ % of vertical steel			1 % of vertical steel			1½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	0.50	42,800	42,200	1.00	45,600	44,400	1.50	48,400	46,600
11	121	0.61	51,800	51,100	1.21	55,200	53,700	1.82	58,600	56,400
12	144	0.72	61,600	60,800	1.44	65,700	63,900	2.16	69,700	67,100
13	169	0.85	72,300	71,300	1.69	77,100	75,000	2.54	81,800	78,800
14	196	0.98	83,900	82,700	1.96	89,400	87,000	2.94	94,900	91,300
15	225	1.13	96,300	94,900	2.25	102,600	99,900	3.38	108,900	104,800
16	256	1.28	109,600	108,000	2.56	116,700	113,700	3.84	123,900	119,300
17	289	1.45	123,700	122,000	2.89	131,800	128,300	4.34	139,900	134,700
18	324	1.62	138,700	136,700	3.24	147,700	143,900	4.86	156,800	151,000
19	361	1.81	154,500	152,300	3.61	164,600	160,300	5.42	174 700	168,200
20	400	2.00	171,200	168,800	4.00	182,400	177,600	6.00	193,600	186,400
21	441	2.21	188,700	186,100	4.41	201,100	195,800	6.62	213,400	205,500
22	484	2.42	207,200	204,200	4.84	220,700	214,900	7.26	234,300	225,500
23	529	2.65	226,400	223,200	5.29	241,200	234,900	7.94	256,000	246,500
24	576	2.88	246,500	243,100	5.76	262,700	255,700	8.64	278,800	268,400
25	625	3.12	267 500	263,700	6.25	285,000	277,500	9.38	302,500	291,000
26	676	3.38	289,300	285,300	6.76	308,300	300,100	10.14	327,200	315,000
27	729	3.65	312,000	307,600	7.29	332,400	323,700	10.94	352,800	339,700
28	784	3.92	335,600	330,800	7.84	357,500	348,100	11.76	379,500	365,300
29	841	4.20	359,900	354,900	8.41	383,500	373,400	12.62	407,000	391,900
30	900	4.50	385,200	379,800	9.00	410,400	399,600	13.50	435,600	419,400
31	961	4.81	411,300	405,500	9.61	438,200	426,700	14.42	465,100	447,800
32	1,024	5.12	438,300	432,100	10.24	466,900	454,700	15.36	495,600	477,200
33	1,089	5.45	466,100	459,600	10.89	496,600	483,500	16.34	527,000	507,000
34	1,156	5.78	494,800	487,800	11.56	527,000	513,000	17.34	560,000	539,000
35	1,225	6.13	524,000	517,000	12.25	559,000	544,000	18.38	593,000	571,000
36	1,296	6.48	555,000	547,000	12.96	591,000	575,000	19.44	627,000	604,000
37	1,369	6.85	586,000	578,000	13.69	624,000	608,000	20.54	663,000	638,000
38	1,444	7.22	618,000	609,000	14.44	658,000	641,000	21.66	699,000	673,000
39	1,521	7.61	651,000	642,000	15.21	694,000	675,000	22.82	736,000	709,000
40	1,600	8.00	685,000	675,000	16.00	730,000	710,000	24.00	774,000	746,000
41	1,681	8.41	719,000	709,000	16.81	767,000	746,000	25.22	814,000	783,000
42	1,764	8.82	755,000	744,000	17.64	804,000	783,000	26.46	854,000	822,000
43	1,849	9.25	791,000	780,000	18.49	843,000	821,000	27.74	895,000	862,000
44	1,936	9.68	829,000	817,000	19.36	883,000	860,000	29.04	937,000	902,000
45	2,025	10.13	867,000	855,000	20.25	923,000	899,000	30.38	980,000	944,000
46	2,116	10.58	906,000	893,000	21.16	965,000	940,000	31.74	1,024,000	987,000
47	2,209	11.05	945,000	932,000	22.09	1,007,000	981,000	33.14	1,069,000	1,029,000
48	2,304	11.52	986,000	972,000	23.04	1,051,000	1,023,000	34.56	1,115,000	1,074,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 400$

Size of column in inches	Area of column in sq. inches	2% of vertical steel			2½% of vertical steel			3% of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	2.00	51,200	48,800	2.50	54,000	51,000	3.00	56,800	53,200
11	121	2.42	62,000	59,000	3.03	65,300	61,700	3.63	68,700	64,400
12	144	2.88	73,700	70,300	3.60	77,800	73,400	4.32	81,800	76,600
13	169	3.38	86,500	82,500	4.23	91,300	86,200	5.07	96,000	89,900
14	196	3.92	100,400	95,600	4.90	105,800	100,000	5.88	111,300	104,300
15	225	4.50	115,200	109,800	5.63	121,500	114,700	6.75	127,800	119,700
16	256	5.12	131,100	124,900	6.40	138,200	130,600	7.68	145,400	136,200
17	289	5.78	148,000	141,000	7.23	156,100	147,400	8.67	164,200	153,700
18	324	6.48	165,900	158,100	8.10	175,000	165,200	9.72	184,000	172,400
19	361	7.22	184,800	176,200	9.03	194,900	184,100	10.83	205,000	192,100
20	400	8.00	204,800	195,200	10.00	216,000	204,000	12.00	227,200	212,800
21	441	8.82	225,800	215,200	11.03	238,100	224,900	13.23	250,500	234,600
22	484	9.68	247,800	236,200	12.10	261,400	246,800	14.52	274,900	257,500
23	529	10.58	270,800	258,200	13.23	285,700	269,800	15.87	300,500	281,400
24	576	11.52	294,900	281,100	14.40	311,000	293,800	17.28	327,200	306,400
25	625	12.50	320,000	305,000	15.63	337,500	318,700	18.75	355,000	332,500
26	676	13.52	346,100	329,900	16.90	365,000	344,800	20.28	384,000	359,600
27	729	14.58	373,200	355,800	18.23	393,700	371,800	21.87	414,100	387,800
28	784	15.68	401,400	382,600	19.60	423,400	399,800	23.52	445,300	417,100
29	841	16.82	430,600	410,400	21.03	454,100	427,200	25.23	477,700	447,400
30	900	18.10	460,800	439,200	22.50	486,000	459,000	27.00	511,000	478,800
31	961	19.22	492,000	469,000	24.03	519,000	490,100	28.83	546,000	511,000
32	1,024	20.48	524,000	499,700	25.60	553,000	522,000	30.72	582,000	545,000
33	1,089	21.78	558,000	531,000	27.23	588,000	555,000	32.67	619,000	579,000
34	1,156	23.12	592,000	564,000	28.90	624,000	590,000	34.68	657,000	615,000
35	1,225	24.50	627,000	598,000	30.63	661,000	625,000	36.75	696,000	652,000
36	1,296	25.92	664,000	632,000	32.40	700,000	661,000	38.88	736,000	689,000
37	1,369	27.38	701,000	668,000	34.23	739,000	698,000	41.07	778,000	728,000
38	1,444	28.88	739,000	705,000	36.10	780,000	736,000	43.32	820,000	768,000
39	1,521	30.42	779,000	742,000	38.03	821,000	776,000	45.63	864,000	809,000
40	1,600	32.00	819,000	781,000	40.00	864,000	816,000	48.00	909,000	851,000
41	1,681	33.62	861,000	820,000	42.03	908,000	857,000	50.43	955,000	894,000
42	1,764	34.28	903,000	861,000	44.10	953,000	900,000	52.92	1,002,000	938,000
43	1,849	36.98	947,000	902,000	46.23	998,000	943,000	55.47	1,050,000	984,000
44	1,936	38.72	991,000	945,000	48.40	1,045,000	987,000	57.72	1,100,000	1,030,000
45	2,025	40.50	1,037,000	988,000	50.63	1,093,000	1,033,000	60.75	1,150,000	1,077,000
46	2,116	42.32	1,083,000	1,033,000	52.90	1,143,000	1,075,000	63.48	1,202,000	1,126,000
47	2,209	44.18	1,131,000	1,078,000	55.23	1,193,000	1,127,000	66.27	1,255,000	1,175,000
48	2,304	46.08	1,180,000	1,124,000	57.60	1,244,000	1,175,000	69.08	1,309,000	1,220,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 400$

Size of column in inches	Area of column in sq. inches	3½ % of vertical steel			4 % of vertical steel			4½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	3.50	59,600	55,400	4.00	62,400	57,600	4.50	65,200	59,800
11	121	4.24	72,100	67,000	4.84	75,500	69,700	5.45	78,900	72,400
12	144	5.04	85,800	79,800	5.76	89,900	82,900	6.48	93,900	86,100
13	169	5.92	100,700	93,600	6.76	105,400	97,300	7.61	110,200	101,100
14	196	6.86	116,800	108,600	7.84	122,300	112,900	8.82	127,800	117,200
15	225	7.88	134,100	124,600	9.00	140,400	129,600	10.13	146,700	134,500
16	256	8.96	152,600	141,800	10.24	159,700	147,500	11.52	166,900	153,100
17	289	10.12	172,200	160,100	11.56	180,300	166,500	13.01	188,400	172,800
18	324	11.34	193,100	179,500	12.96	202,200	186,600	14.58	211,200	193,800
19	361	12.64	215,200	200,000	14.44	225,300	207,900	16.25	235,400	215,900
20	400	14.00	238,400	221,600	16.00	249,600	230,400	18.00	260,800	239,200
21	441	15.44	262,800	244,300	17.64	275,200	254,000	19.85	287,500	263,700
22	484	16.96	288,500	268,100	19.36	302,000	278,800	21.78	315,600	289,400
23	529	18.52	315,300	293,100	21.06	330,100	304,700	23.81	344,900	316,300
24	576	20.16	343,300	319,100	23.04	359,400	331,800	25.92	375,600	344,400
25	625	21.88	372,500	346,200	25.00	390,000	360,000	28.13	407,500	373,700
26	678	23.66	402,900	374,500	27.04	421,800	389,400	30.42	440,800	404,200
27	729	25.52	434,500	403,800	29.16	454,900	419,900	32.81	475,300	435,900
28	784	27.44	467,300	434,300	31.36	489,200	451,600	35.28	511,000	468,800
29	841	29.44	501,000	465,900	33.64	525,000	484,400	37.85	548,000	503,000
30	900	31.50	536,000	498,600	36.00	562,000	518,000	40.50	587,000	538,000
31	961	33.64	573,000	532,000	38.44	600,000	554,000	43.25	627,000	575,000
32	1,024	35.84	610,000	567,000	40.06	639,000	590,000	46.08	668,000	612,000
33	1,089	38.12	649,000	603,000	43.56	680,000	627,000	49.01	710,000	651,000
34	1,156	40.46	689,000	640,000	46.24	721,000	666,000	52.02	754,000	691,000
35	1,225	42.88	730,000	679,000	49.00	764,000	706,000	55.13	799,000	733,000
36	1,296	45.36	772,000	718,000	51.84	809,000	746,000	58.32	845,000	775,000
37	1,309	47.92	816,000	758,000	54.76	854,000	789,000	61.61	893,000	819,000
38	1,444	50.54	861,000	800,000	57.76	901,000	832,000	64.98	941,000	864,000
39	1,521	53.24	907,000	843,000	60.84	949,000	876,000	68.45	992,000	910,000
40	1,600	56.00	954,000	886,000	64.00	998,000	922,000	72.00	1,043,000	957,000
41	1,681	58.84	1,002,000	931,000	67.24	1,049,000	968,000	75.65	1,096,000	1,005,000
42	1,764	61.74	1,051,000	977,000	70.56	1,101,000	1,016,000	79.38	1,150,000	1,055,000
43	1,849	64.72	1,102,000	1,024,000	73.56	1,154,000	1,065,000	83.21	1,206,000	1,106,000
44	1,936	67.76	1,154,000	1,073,000	77.44	1,208,000	1,115,000	87.12	1,262,000	1,158,000
45	2,025	70.88	1,207,000	1,122,000	81.00	1,264,000	1,664,000	91.13	1,320,000	1,211,000
46	2,116	74.06	1,261,000	1,172,000	84.64	1,320,000	1,214,000	95.22	1,380,000	1,265,000
47	2,209	77.32	1,317,000	1,224,000	88.36	1,378,000	1,272,000	99.41	1,440,000	1,321,000
48	2,304	80.64	1,373,000	1,276,000	92.16	1,438,000	1,327,000	103.68	1,502,000	1,378,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 450$

Size of column in inches	Area of column in sq. inches	½ % of vertical steel			1 % of vertical steel			1½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	0.50	48,100	47,500	1.00	51,300	49,900	1.50	54,400	52,400
11	121	0.61	58,300	57,400	1.21	62,100	60,400	1.82	65,900	63,400
12	144	0.72	69,300	68,400	1.44	73,900	71,900	2.16	78,400	75,500
13	169	0.85	81,400	80,200	1.69	86,700	84,400	2.54	92,000	88,600
14	196	0.98	94,400	93,100	1.96	100,500	97,900	2.94	106,700	102,800
15	225	1.13	108,300	106,800	2.25	115,400	112,400	3.38	122,500	118,000
16	256	1.28	123,300	121,500	2.56	131,300	127,900	3.84	139,400	134,200
17	289	1.45	139,200	137,200	2.89	148,300	144,400	4.34	157,400	151,500
18	324	1.62	156,000	153,800	3.24	166,200	161,800	4.86	176,400	169,900
19	361	1.81	173,800	171,400	3.61	185,200	180,300	5.42	196,600	189,300
20	400	2.00	192,600	189,900	4.00	205,200	199,800	6.00	217,800	209,700
21	441	2.21	212,300	209,400	4.41	226,200	220,300	6.62	240,100	231,200
22	484	2.42	233,000	229,800	4.84	248,300	241,800	7.26	263,500	253,700
23	529	2.65	254,700	251,100	5.29	271,400	264,200	7.94	288,000	277,300
24	576	2.88	277,300	273,500	5.76	295,500	287,700	8.64	313,600	302,000
25	625	3.13	300,900	296,700	6.25	320,600	312,200	9.38	340,300	327,700
26	676	3.38	325,500	320,900	6.76	346,800	337,700	10.14	368,100	354,400
27	729	3.65	351,000	346,100	7.29	374,000	364,100	10.94	396,900	382,200
28	784	3.92	377,500	372,200	7.84	402,200	391,600	11.76	426,900	411,000
29	841	4.21	404,900	399,300	8.41	431,400	420,100	12.62	457,900	440,900
30	900	4.50	433,300	427,300	9.00	461,700	449,500	13.50	490,000	471,800
31	961	4.81	462,700	456,200	9.61	493,000	480,000	14.42	523,000	504,000
32	1,024	5.12	493,100	486,100	10.24	525,000	511,000	15.36	558,000	537,000
33	1,089	5.44	524,000	517,000	10.89	559,000	544,000	16.34	593,000	571,000
34	1,156	5.78	557,000	549,000	11.56	593,000	577,000	17.34	629,000	606,000
35	1,225	6.13	590,000	582,000	12.25	628,000	612,000	18.38	667,000	642,000
36	1,296	6.48	624,000	615,000	12.96	665,000	647,000	19.44	706,000	679,000
37	1,369	6.85	659,000	650,000	13.69	702,000	684,000	20.54	745,000	718,000
38	1,444	7.22	695,000	686,000	14.44	741,000	721,000	21.66	786,000	757,000
39	1,521	7.61	732,000	722,000	15.21	780,000	760,000	22.82	828,000	797,000
40	1,600	8.00	770,000	760,000	16.00	821,000	799,000	24.00	871,000	839,000
41	1,681	8.41	809,000	798,000	16.81	862,000	840,000	25.22	915,000	881,000
42	1,764	8.82	849,000	837,000	17.64	905,000	881,000	26.46	960,000	925,000
43	1,849	9.25	890,000	878,000	18.49	949,000	924,000	27.74	1,007,000	969,000
44	1,936	9.68	932,000	919,000	19.36	993,000	967,000	29.04	1,054,000	1,015,000
45	2,025	10.13	975,000	961,000	20.25	1,039,000	1,011,000	30.38	1,103,000	1,062,000
46	2,116	10.58	1,019,000	1,005,000	21.16	1,086,000	1,057,000	31.74	1,152,000	1,109,000
47	2,209	11.05	1,064,000	1,049,000	22.09	1,133,000	1,103,000	33.14	1,203,000	1,158,000
48	2,304	11.52	1,109,000	1,094,000	23.04	1,182,000	1,151,000	34.56	1,255,000	1,208,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 450$

Side of column in inches	Area of column in sq. inches	2% of vertical steel			2½% of vertical steel			3% of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	2.00	57,600	54,900	2.50	60,700	57,400	3.00	63,900	59,800
11	121	2.42	69,700	66,400	3.03	73,500	69,400	3.63	77,300	72,400
12	144	2.88	82,900	79,100	3.60	87,500	82,600	4.32	92,000	86,200
13	169	3.38	97,300	92,800	4.23	102,700	97,000	5.07	108,000	101,100
14	196	3.92	112,900	107,600	4.90	119,100	112,500	5.88	125,200	117,300
15	225	4.50	129,600	123,500	5.63	136,700	129,100	6.75	143,800	134,700
16	256	5.12	147,500	140,500	6.40	155,500	146,900	7.68	163,600	153,200
17	289	5.78	166,500	158,700	7.23	175,600	165,800	8.67	184,700	173,000
18	324	6.48	186,600	177,900	8.10	196,800	185,900	9.72	207,000	193,900
19	361	7.22	207,900	198,200	9.03	219,300	207,100	10.83	230,700	216,100
20	400	8.00	230,400	219,600	10.00	243,000	229,500	12.00	255,600	239,400
21	441	8.82	254,000	242,100	11.03	267,900	253,000	13.23	281,800	263,900
22	484	9.68	278,800	265,700	12.10	294,000	277,700	14.52	309,300	289,700
23	529	10.58	304,700	290,400	13.23	321,400	303,500	15.87	338,000	316,600
24	576	11.52	331,800	316,200	14.40	350,000	330,500	17.28	368,100	344,700
25	625	12.50	360,000	343,100	15.63	379,700	358,600	18.75	399,400	374,100
26	676	13.52	389,400	371,100	16.90	410,700	387,900	20.28	432,000	404,600
27	729	14.58	419,900	400,200	18.23	442,900	418,300	21.87	465,800	436,300
28	784	15.68	451,600	430,400	19.60	476,300	449,800	23.52	501,000	469,200
29	841	16.82	484,400	461,700	21.03	511,000	482,500	25.23	537,000	503,000
30	900	18.00	518,000	494,100	22.50	547,000	516,000	27.00	575,000	539,000
31	961	19.22	554,000	528,000	24.03	584,000	551,000	28.83	614,000	575,000
32	1,024	20.48	590,000	562,000	25.60	622,000	588,000	30.72	654,000	613,000
33	1,089	21.78	627,000	598,000	27.23	662,000	625,000	32.67	696,000	652,000
34	1,156	23.12	666,000	635,000	28.90	702,000	663,000	34.68	739,000	692,000
35	1,225	24.50	706,000	673,000	30.63	744,000	703,000	36.75	783,000	733,000
36	1,296	25.92	746,000	712,000	32.40	787,000	744,000	38.88	828,000	776,000
37	1,369	27.38	789,000	752,000	34.23	832,000	785,000	41.07	875,000	819,000
38	1,444	28.88	832,000	793,000	36.10	877,000	828,000	43.32	923,000	864,000
39	1,521	30.42	876,000	835,000	38.03	924,000	873,000	45.63	972,000	910,000
40	1,600	32.00	922,000	878,000	40.00	972,000	918,000	48.00	1,022,000	958,000
41	1,681	33.62	968,000	923,000	42.03	1,021,000	964,000	50.43	1,074,000	1,006,000
42	1,764	34.28	1,016,000	968,000	44.10	1,072,000	1,012,000	52.92	1,127,000	1,056,000
43	1,849	36.98	1,065,000	1,015,000	46.23	1,123,000	1,061,000	55.47	1,182,000	1,107,000
44	1,936	38.72	1,115,000	1,063,000	48.40	1,176,000	1,111,000	57.72	1,237,000	1,159,000
45	2,025	40.50	1,166,000	1,112,000	50.63	1,230,000	1,162,000	60.75	1,294,000	1,212,000
46	2,116	42.32	1,219,000	1,162,000	52.90	1,285,000	1,214,000	62.48	1,352,000	1,266,000
47	2,209	44.18	1,272,000	1,213,000	55.23	1,342,000	1,267,000	66.27	1,412,000	1,322,000
48	2,304	46.08	1,327,000	1,265,000	57.60	1,400,000	1,322,000	69.08	1,472,000	1,379,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 450$

Size of column in inches	Area of column in sq. inches	3½ % of vertical steel			4 % of vertical steel			4½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	3.50	67,000	62,300	4.00	70,200	64,800	4.50	73,300	67,300
11	121	4.24	81,100	75,400	4.84	84,900	78,400	5.45	88,800	81,400
12	144	5.04	96,600	89,700	5.76	101,100	93,300	6.48	105,600	96,900
13	169	5.92	113,300	105,300	6.76	118,600	109,500	7.61	124,000	113,700
14	196	6.86	131,400	122,200	7.84	137,600	127,000	8.82	143,800	131,900
15	225	7.88	150,900	140,200	9.00	157,900	145,800	10.13	165,000	151,400
16	256	8.96	171,600	159,600	10.24	179,700	165,900	11.52	187,800	172,200
17	289	10.12	193,800	180,100	11.56	202,900	187,300	13.01	212,000	194,400
18	324	11.34	217,200	201,900	12.96	227,400	210,000	14.58	237,700	218,000
19	361	12.64	242,100	225,000	14.44	253,400	233,900	16.25	264,800	242,900
20	400	14.00	268,200	249,300	16.00	280,800	259,200	18.00	293,400	269,100
21	441	15.44	295,700	274,900	17.64	309,600	285,800	19.85	323,500	296,700
22	484	16.96	324,500	301,700	19.36	339,800	313,600	21.78	355,000	325,600
23	529	18.52	354,700	329,700	21.06	371,400	342,800	23.81	388,000	355,900
24	576	20.16	368,200	359,000	23.04	404,400	373,200	25.92	422,500	387,500
25	625	21.88	419,100	389,500	25.00	438,700	405,000	28.13	458,400	420,500
26	676	23.66	453,300	421,300	27.04	474,600	438,000	30.42	495,800	454,800
27	729	25.52	488,800	454,300	29.16	512,000	472,400	32.81	535,000	490,400
28	784	27.44	526,000	488,600	31.36	550,000	508,000	35.28	575,000	527,000
29	841	29.44	564,000	524,000	33.64	590,000	545,000	37.85	617,000	566,000
30	900	31.50	603,000	561,000	36.00	632,000	583,000	40.50	660,000	605,000
31	961	33.64	644,000	599,000	38.44	675,000	623,000	43.25	705,000	647,000
32	1,024	35.84	687,000	638,000	40.06	719,000	664,000	46.08	751,000	689,000
33	1,089	38.12	730,000	679,000	43.56	764,000	706,000	49.01	799,000	733,000
34	1,156	40.46	775,000	720,000	46.24	812,000	749,000	52.02	848,000	778,000
35	1,225	42.88	821,000	763,000	49.00	860,000	794,000	55.13	899,000	824,000
36	1,296	45.36	869,000	808,000	51.84	910,000	840,000	58.32	951,000	872,000
37	1,369	47.92	918,000	853,000	54.76	961,000	887,000	61.61	1,004,000	921,000
38	1,444	50.54	968,000	900,000	57.76	1,014,000	936,000	64.98	1,059,000	971,000
39	1,521	53.24	1,020,000	948,000	60.48	1,068,000	986,000	68.45	1,116,000	1,023,000
40	1,600	56.00	1,073,000	997,000	64.00	1,123,000	1,037,000	72.00	1,174,000	1,076,000
41	1,681	58.84	1,127,000	1,048,000	67.24	1,180,000	1,089,000	76.65	1,233,000	1,131,000
42	1,764	61.74	1,183,000	1,099,000	70.56	1,238,000	1,143,000	79.38	1,294,000	1,187,000
43	1,849	64.72	1,240,000	1,152,000	73.56	1,298,000	1,198,000	83.21	1,356,000	1,244,000
44	1,936	67.76	1,298,000	1,207,000	77.44	1,359,000	1,255,000	87.12	1,420,000	1,302,000
45	2,025	70.88	1,358,000	1,262,000	81.00	1,422,000	1,312,000	91.13	1,485,000	1,362,000
46	2,116	74.06	1,419,000	1,319,000	84.64	1,485,000	1,371,000	95.22	1,552,000	1,424,000
47	2,209	77.32	1,481,000	1,377,000	88.36	1,551,000	1,431,000	99.41	1,620,000	1,486,000
48	2,304	80.64	1,545,000	1,436,000	92.16	1,617,000	1,493,000	103.68	1,690,000	1,550,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 500$

Side of column in inches	Area of column in sq. inches	½% vertical steel			1% of vertical steel			1½% of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	0.50	53,500	52,700	1.00	57,000	55,500	1.50	60,500	58,200
11	121	0.61	64,700	63,800	1.21	69,000	67,200	1.82	73,200	70,500
12	144	0.72	77,000	76,000	1.44	82,100	79,900	2.16	87,100	83,900
13	169	0.85	90,400	89,100	1.69	96,300	93,800	2.54	102,200	98,400
14	196	0.98	104,900	103,400	1.96	111,700	108,800	2.94	118,600	114,200
15	225	1.13	120,400	118,700	2.25	128,200	124,900	3.38	136,100	131,100
16	256	1.28	137,000	135,000	2.56	145,900	142,100	3.84	154,900	149,100
17	289	1.45	154,600	152,400	2.89	164,700	160,400	4.34	174,800	168,300
18	324	1.62	173,300	170,900	3.24	184,700	179,800	4.86	196,000	188,700
19	361	1.81	193,100	190,400	3.61	205,800	200,400	5.42	218,400	210,300
20	400	2.00	214,000	211,000	4.00	228,000	222,000	6.00	242,000	233,000
21	441	2.21	235,900	232,600	4.41	251,400	244,800	6.62	266,800	256,900
22	484	2.42	258,900	255,300	4.84	275,900	268,600	7.26	292,800	281,900
23	529	2.65	283,000	279,000	5.29	301,500	293,600	7.94	320,000	308,100
24	576	2.88	308,200	303,800	5.76	328,300	319,700	8.64	348,500	335,500
25	625	3.12	334,400	329,700	6.25	356,200	346,900	9.38	378,100	364,100
26	676	3.38	361,700	356,600	6.76	385,300	375,200	10.14	409,000	393,800
27	729	3.65	390,000	384,500	7.29	415,500	404,600	10.94	441,000	424,600
28	784	3.92	419,400	413,600	7.84	446,900	435,100	11.76	474,300	456,700
29	841	4.20	449,900	443,600	8.41	479,400	466,800	12.62	509,000	489,900
30	900	4.50	481,500	474,700	9.00	513,000	499,500	13.50	544,000	524,000
31	961	4.81	514,000	507,000	9.61	548,000	533,000	14.42	581,000	560,000
32	1,024	5.12	548,000	540,000	10.24	584,000	568,000	15.36	620,000	596,000
33	1,089	5.45	583,000	574,400	10.89	621,000	604,000	16.34	659,000	634,000
34	1,156	5.78	618,000	610,000	11.56	659,000	642,000	17.34	699,000	673,000
35	1,225	6.13	655,000	646,000	12.25	698,000	680,000	18.38	741,000	714,000
36	1,296	6.48	693,000	684,000	12.96	739,000	719,000	19.44	784,000	755,000
37	1,369	6.85	732,000	722,000	13.69	780,000	760,000	20.54	828,000	797,000
38	1,444	7.22	773,000	762,000	14.44	823,000	801,000	21.66	874,000	841,000
39	1,521	7.61	814,000	802,000	15.21	867,000	844,000	22.82	920,000	886,000
40	1,600	8.00	856,000	844,000	16.00	912,000	888,000	24.00	968,000	932,000
41	1,681	8.41	899,000	887,000	16.81	958,000	933,000	25.22	1,017,000	979,000
42	1,764	8.82	944,000	931,000	17.64	1,005,000	979,000	26.46	1,067,000	1,028,000
43	1,849	9.25	989,000	975,000	18.49	1,054,000	1,026,000	27.74	1,119,000	1,077,000
44	1,936	9.68	1,036,000	1,021,000	19.36	1,104,000	1,074,000	29.04	1,171,000	1,128,000
45	2,025	10.13	1,083,000	1,068,000	20.25	1,154,000	1,124,000	30.38	1,225,000	1,180,000
46	2,116	10.58	1,132,000	1,116,000	21.16	1,206,000	1,174,000	31.74	1,280,000	1,233,000
47	2,209	11.05	1,182,000	1,165,000	22.09	1,259,000	1,226,000	33.14	1,336,000	1,287,000
48	2,304	11.52	1,233,000	1,215,000	23.04	1,313,000	1,279,000	34.56	1,394,000	1,342,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 500$

Size of column in inches	Area of column in sq. inches	2% of vertical steel			2½% of vertical steel			3% of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	2.00	64,000	61,000	2.50	67,500	63,700	3.00	71,000	66,500
11	121	2.42	77,400	73,800	3.03	81,700	77,100	3.63	85,900	80,500
12	144	2.88	92,200	87,800	3.60	97,200	91,800	4.32	102,200	95,800
13	169	3.38	108,200	103,100	4.23	114,100	107,700	5.07	120,000	112,400
14	196	3.92	125,400	119,600	4.90	132,300	124,900	5.88	139,200	130,300
15	225	4.50	144,000	137,200	5.63	151,900	143,400	6.75	159,700	149,600
16	256	5.12	163,800	156,200	6.40	172,800	163,200	7.68	181,800	170,200
17	289	5.78	185,000	176,300	7.23	195,100	184,200	8.67	205,200	192,200
18	324	6.48	207,400	197,600	8.10	218,700	206,500	9.72	230,000	215,500
19	361	7.22	231,000	220,200	9.03	243,700	230,100	10.83	256,300	240,100
20	400	8.00	256,000	244,000	10.00	270,000	255,000	12.00	284,000	266,000
21	441	8.82	282,200	269,000	11.03	297,700	281,100	13.23	313,100	293,300
22	484	9.68	309,800	295,200	12.10	326,700	308,500	14.52	343,600	321,900
23	529	10.58	338,600	322,700	13.23	357,100	337,200	15.87	375,600	351,800
24	576	11.52	368,600	351,400	14.40	388,800	367,200	17.28	409,000	383,000
25	625	12.50	400,000	381,200	15.63	421,900	398,400	18.75	443,700	415,600
26	676	13.52	432,600	412,400	16.90	456,300	430,900	20.28	480,000	449,500
27	729	14.58	466,600	444,700	18.23	492,100	464,700	21.87	518,000	484,800
28	784	15.68	502,000	478,200	19.60	529,000	499,800	23.52	557,000	521,000
29	841	16.82	538,000	513,000	21.03	568,000	536,000	25.23	597,000	559,000
30	900	18.00	576,000	549,000	22.50	607,000	574,000	27.00	639,000	598,000
31	961	19.22	615,000	586,000	24.03	649,000	613,000	28.83	682,000	639,000
32	1,024	20.48	655,000	625,000	25.60	691,000	653,000	30.72	727,000	681,000
33	1,089	21.78	697,000	664,000	27.23	735,000	694,000	32.67	773,000	724,000
34	1,156	23.12	740,000	705,000	28.90	780,000	737,000	34.68	821,000	769,000
35	1,225	24.50	784,000	747,000	30.63	827,000	781,000	36.75	870,000	815,000
36	1,296	25.92	829,000	791,000	32.40	875,000	826,000	38.88	920,000	862,000
37	1,369	27.38	876,000	835,000	34.23	924,000	873,000	41.07	972,000	910,000
38	1,444	28.88	924,000	881,000	36.10	975,000	921,000	43.32	1,025,000	960,000
39	1,521	30.42	973,000	928,000	38.03	1,027,000	970,000	45.63	1,080,000	1,011,000
40	1,600	32.00	1,024,000	976,000	40.00	1,080,000	1,020,000	48.00	1,136,000	1,064,000
41	1,681	33.62	1,076,000	1,025,000	42.03	1,135,000	1,072,000	50.43	1,194,000	1,118,000
42	1,764	34.28	1,129,000	1,076,000	44.10	1,191,000	1,125,000	52.92	1,252,000	1,173,000
43	1,849	36.98	1,183,000	1,128,000	46.23	1,248,000	1,179,000	55.47	1,313,000	1,230,000
44	1,936	38.72	1,239,000	1,181,000	48.40	1,307,000	1,234,000	57.72	1,375,000	1,287,000
45	2,025	40.50	1,296,000	1,235,000	50.63	1,367,000	1,291,000	60.75	1,438,000	1,347,000
46	2,116	42.32	1,354,000	1,291,000	52.90	1,428,000	1,349,000	63.48	1,502,000	1,407,000
47	2,209	44.18	1,414,000	1,347,000	55.23	1,491,000	1,408,000	66.27	1,568,000	1,469,000
48	2,304	46.08	1,475,000	1,405,000	57.60	1,555,900	1,469,000	69.08	1,636,000	1,532,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 500$

Size of column in inches	Area of column in sq. inches	3½ % of vertical steel			4 % of vertical steel			4½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	3.50	74,500	69,200	4.00	78,000	72,000	4.50	81,500	74,700
11	121	4.24	90,100	83,800	4.84	94,400	87,100	5.45	98,600	90,400
12	144	5.04	107,300	99,700	5.76	112,300	103,700	6.48	117,400	107,600
13	169	5.92	125,900	117,000	6.76	131,800	121,700	7.61	137,700	126,300
14	196	6.86	146,000	135,700	7.84	152,900	141,100	8.82	159,700	146,500
15	225	7.88	167,600	155,800	9.00	175,500	162,000	10.13	183,400	168,200
16	256	8.96	190,700	177,300	10.24	199,700	184,300	11.52	208,600	191,400
17	289	10.12	215,300	200,100	11.56	225,400	208,100	13.01	235,500	216,000
18	324	11.34	241,400	224,400	12.96	252,700	233,300	14.58	264,100	242,200
19	361	12.64	268,900	250,000	14.44	281,600	259,900	16.25	294,200	269,800
20	400	14.00	298,000	277,000	16.00	312,000	288,000	18.00	326,000	299,000
21	441	15.44	328,500	305,400	17.64	344,000	317,500	19.85	359,400	329,600
22	484	16.96	360,600	335,200	19.36	377,500	348,500	21.78	394,500	361,800
23	529	18.52	394,100	366,300	21.06	412,600	380,900	23.81	431,100	395,400
24	576	20.16	429,100	398,900	23.04	449,300	414,700	25.92	469,400	430,600
25	625	21.88	465,600	432,800	25.00	487,500	450,000	28.13	509,000	467,200
26	676	23.66	504,000	468,100	27.04	527,000	486,700	30.42	551,000	505,000
27	729	25.52	543,000	505,000	29.16	569,000	525,000	32.81	594,000	545,000
28	784	27.44	584,000	543,000	31.36	612,000	564,000	35.28	639,000	586,000
29	841	29.44	627,000	582,000	33.64	656,000	606,000	37.85	685,000	629,000
30	900	31.50	670,000	623,000	36.00	702,000	648,000	40.50	733,000	673,000
31	961	33.64	716,000	665,000	38.44	750,000	692,000	43.25	783,000	718,000
32	1,024	35.84	763,000	709,000	40.06	799,000	737,000	46.08	835,000	765,000
33	1,089	38.12	811,000	754,000	43.56	849,000	784,000	49.01	888,000	814,000
34	1,156	40.46	861,000	801,000	46.24	902,000	832,000	52.02	942,000	864,000
35	1,225	42.88	913,000	848,000	49.00	955,000	882,000	55.13	998,000	916,000
36	1,296	45.36	966,000	897,000	51.84	1,011,000	933,000	58.32	1,056,000	969,000
37	1,369	47.92	1,020,000	948,000	54.76	1,068,000	986,000	61.61	1,116,000	1,023,000
38	1,444	50.54	1,076,000	1,000,000	57.76	1,126,000	1,040,000	64.98	1,177,000	1,079,000
39	1,521	53.24	1,133,000	1,053,000	60.84	1,186,000	1,095,000	68.45	1,240,000	1,137,000
40	1,600	56.00	1,192,000	1,108,000	64.00	1,248,000	1,152,000	72.00	1,304,000	1,196,000
41	1,681	58.84	1,252,000	1,164,000	67.24	1,311,000	1,210,000	75.65	1,370,000	1,257,000
42	1,764	61.74	1,314,000	1,222,000	70.56	1,376,000	1,270,000	79.38	1,438,000	1,319,000
43	1,849	64.72	1,378,000	1,280,000	73.56	1,442,000	1,331,000	83.21	1,507,000	1,382,000
44	1,936	67.76	1,442,000	1,341,000	77.44	1,510,000	1,394,000	87.12	1,578,000	1,447,000
45	2,025	70.88	1,509,000	1,402,000	81.00	1,579,000	1,458,000	91.13	1,650,000	1,514,000
46	2,116	74.06	1,576,000	1,465,000	84.64	1,650,000	1,524,000	95.22	1,725,000	1,582,000
47	2,209	77.32	1,646,000	1,530,000	88.36	1,723,000	1,590,000	99.41	1,800,000	1,651,000
48	2,304	80.64	1,716,000	1,596,000	92.16	1,797,000	1,659,000	103.68	1,878,000	1,722,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 550$

Size of column in inches	Area of column in sq. inches	½ % of vertical steel			1 % of vertical steel			1½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	0.50	58,800	58,000	1.00	62,700	61,000	1.50	66,500	64,100
11	121	0.61	71,200	70,200	1.21	75,900	73,900	1.82	80,500	77,500
12	144	0.72	84,700	83,600	1.44	90,300	87,900	2.16	95,800	92,300
13	169	0.85	99,500	98,100	1.69	106,000	103,200	2.54	112,500	108,300
14	196	0.98	115,300	113,700	1.96	122,900	119,700	2.94	130,400	125,600
15	225	1.13	132,400	130,600	2.25	141,100	137,400	3.38	149,700	144,200
16	256	1.28	150,700	148,500	2.56	160,500	156,300	3.84	170,400	164,000
17	289	1.45	170,100	167,700	2.89	181,200	176,400	4.34	192,300	185,200
18	324	1.62	190,700	188,000	3.24	203,100	197,800	4.86	215,600	207,600
19	361	1.81	212,400	209,500	3.61	226,300	220,400	5.42	240,200	231,300
20	400	2.00	235,400	232,100	4.00	250,800	244,200	6.00	266,200	256,300
21	441	2.21	259,500	255,900	4.41	276,500	269,200	6.62	293,500	282,600
22	484	2.42	284,800	280,800	4.84	303,500	295,500	7.26	322,100	310,100
23	529	2.65	311,300	307,000	5.29	331,700	323,000	7.94	352,000	339,000
24	576	2.88	339,000	334,200	5.76	361,200	351,600	8.64	383,300	369,100
25	625	3.12	367,800	362,700	6.25	391,900	381,600	9.38	415,900	400,500
26	676	3.38	397,800	392,200	6.76	423,900	412,700	10.14	449,900	433,100
27	729	3.65	429,000	423,000	7.29	457,000	445,100	10.94	485,100	467,100
28	784	3.92	461,400	454,900	7.84	491,600	478,600	11.76	522,000	502,000
29	841	4.20	494,900	488,000	8.41	527,000	513,000	12.62	560,000	539,000
30	900	4.50	530,000	522,000	9.00	564,000	549,000	13.50	599,000	577,000
31	961	4.81	566,000	558,000	9.61	603,000	587,000	14.42	640,000	616,000
32	1,024	5.12	603,000	594,000	10.24	642,000	625,000	15.36	681,000	656,000
33	1,089	5.45	641,000	632,000	10.89	683,000	665,000	16.34	725,000	698,000
34	1,156	5.78	680,000	671,000	11.56	725,000	706,000	17.34	769,000	741,000
35	1,225	6.13	721,000	711,000	12.25	768,000	748,000	18.38	815,000	785,000
36	1,296	6.48	763,000	752,000	12.96	813,000	791,000	19.44	862,000	830,000
37	1,369	6.85	806,000	794,000	13.69	858,000	836,000	20.54	911,000	877,000
38	1,444	7.22	850,000	838,000	14.44	905,000	882,000	21.66	961,000	925,000
39	1,521	7.61	895,000	883,000	15.21	954,000	929,000	22.82	1,012,000	975,000
40	1,600	8.00	942,000	928,000	16.00	1,003,000	977,000	24.00	1,065,000	1,025,000
41	1,681	8.41	989,000	975,000	16.81	1,054,000	1,026,000	25.22	1,119,000	1,077,000
42	1,764	8.82	1,038,000	1,024,000	17.64	1,106,000	1,077,000	26.46	1,174,000	1,130,000
43	1,849	9.25	1,088,000	1,073,000	18.49	1,159,000	1,129,000	27.74	1,231,000	1,185,000
44	1,936	9.68	1,139,000	1,123,000	19.36	1,214,000	1,182,000	29.04	1,288,000	1,240,000
45	2,025	10.13	1,192,000	1,175,000	20.25	1,270,000	1,236,000	30.38	1,348,000	1,298,000
46	2,116	10.58	1,245,000	1,228,000	21.16	1,327,000	1,292,000	31.74	1,408,000	1,356,000
47	2,209	11.05	1,300,000	1,282,000	22.09	1,385,000	1,349,000	33.14	1,470,000	1,415,000
48	2,304	11.52	1,356,000	1,337,000	23.04	1,445,000	1,407,000	34.56	1,533,000	1,476,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 550$

in inches	Area of column in sq. inches	2% of vertical steel			2½% of vertical steel			3% of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n=15	n=12		n=15	n=12		n=15	n=12
10	100	2.00	70,400	67,100	2.50	74,200	70,100	3.00	78,100	73,100
11	121	2.42	85,200	81,200	3.03	89,800	84,900	3.63	94,500	88,500
12	144	2.88	101,400	96,600	3.60	106,900	101,000	4.32	112,500	105,300
13	169	3.38	119,000	113,400	4.23	125,500	118,500	5.07	132,000	123,600
14	196	3.92	138,000	131,500	4.90	145,500	137,400	5.88	153,100	143,400
15	225	4.50	158,400	151,000	5.63	167,100	157,800	6.75	175,700	164,600
16	256	5.12	180,200	171,800	6.40	190,100	179,500	7.68	199,900	187,300
17	289	5.78	203,500	193,900	7.23	214,600	202,700	8.67	225,700	211,400
18	324	6.48	228,100	217,400	8.10	240,600	227,200	9.72	253,000	237,000
19	361	7.22	254,100	242,200	9.03	268,000	253,200	10.83	281,900	264,100
20	400	8.00	281,600	268,400	10.00	297,000	280,500	12.00	312,400	292,600
21	441	8.82	310,500	295,900	11.03	327,400	309,300	13.23	344,400	322,600
22	484	9.68	340,700	324,800	12.10	359,400	339,400	14.52	378,000	354,000
23	529	10.58	372,400	355,000	13.23	392,800	371,000	15.87	413,100	387,000
24	576	11.52	405,500	386,500	14.40	427,700	403,900	17.28	449,900	421,300
25	625	12.50	440,000	419,400	15.63	464,100	438,300	18.75	488,100	457,200
26	676	13.52	475,900	453,600	16.90	502,000	474,000	20.28	528,000	494,500
27	729	14.58	513,000	489,200	18.23	541,000	511,000	21.87	569,000	533,000
28	784	15.68	552,000	526,000	19.60	582,000	550,000	23.52	612,000	573,000
29	841	16.82	592,000	564,000	21.03	624,000	590,000	25.23	657,000	615,000
30	900	18.00	634,000	604,000	22.50	668,000	631,000	27.00	703,000	658,000
31	961	19.22	677,000	645,000	24.03	714,000	674,000	28.83	751,000	703,000
32	1,024	20.48	721,000	687,000	25.60	760,000	718,000	30.72	800,000	749,000
33	1,089	21.78	767,000	731,000	27.23	809,000	764,000	32.67	851,000	797,000
34	1,156	23.12	814,000	776,000	28.90	858,000	811,000	34.68	903,000	846,000
35	1,225	24.50	862,000	822,000	30.63	910,000	859,000	36.75	957,000	896,000
36	1,296	25.92	912,000	870,000	32.40	962,000	909,000	38.88	1,012,000	948,000
37	1,369	27.38	964,000	919,000	34.23	1,016,000	960,000	41.07	1,069,000	1,001,000
38	1,444	28.88	1,017,000	969,000	36.10	1,072,000	1,013,000	43.32	1,128,000	1,056,000
39	1,521	30.42	1,071,000	1,021,000	38.03	1,129,000	1,067,000	45.63	1,188,000	1,113,000
40	1,600	32.00	1,126,000	1,074,000	40.00	1,188,000	1,122,000	48.00	1,250,000	1,170,000
41	1,681	33.62	1,183,000	1,128,000	42.03	1,248,000	1,179,000	50.43	1,313,000	1,230,000
42	1,764	34.28	1,242,000	1,184,000	44.10	1,310,000	1,237,000	52.92	1,378,000	1,290,000
43	1,849	36.98	1,302,000	1,241,000	46.23	1,373,000	1,297,000	55.47	1,444,000	1,353,000
44	1,936	38.72	1,363,000	1,299,000	48.40	1,437,000	1,358,000	57.72	1,512,000	1,416,000
45	2,025	40.50	1,426,000	1,359,000	50.63	1,504,000	1,420,000	60.75	1,582,000	1,481,000
46	2,116	42.32	1,490,000	1,420,000	52.90	1,571,000	1,484,000	63.48	1,653,000	1,548,000
47	2,209	44.18	1,555,000	1,482,000	55.23	1,640,000	1,549,000	66.27	1,725,000	1,616,000
48	2,304	46.08	1,622,000	1,546,000	57.60	1,711,000	1,616,000	69.08	1,799,000	1,685,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 550$

Size of column in inches	Area of column in sq. inches	3½ % of vertical steel			4 % of vertical steel			4½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	3.50	81,900	76,200	4.00	85,800	79,200	4.50	89,600	82,200
11	121	4.24	99,200	92,200	4.84	103,800	95,800	5.45	108,500	99,500
12	144	5.04	118,000	109,700	5.76	123,600	114,000	6.48	129,100	118,400
13	169	5.92	138,500	128,700	6.76	145,000	133,800	7.61	151,500	139,000
14	196	6.86	160,600	149,300	7.84	168,200	155,200	8.82	175,700	161,200
15	225	7.88	184,400	171,400	9.00	193,000	178,200	10.13	201,700	185,000
16	256	8.96	209,800	195,000	10.24	219,600	202,800	11.52	229,500	210,500
17	289	10.12	236,800	220,100	11.56	248,000	228,900	13.01	259,100	237,600
18	324	11.34	265,500	246,800	12.96	278,000	256,600	14.58	290,500	266,400
19	361	12.64	295,800	275,000	14.44	309,700	285,900	16.25	323,600	296,800
20	400	14.00	327,800	304,700	16.00	343,200	316,800	18.00	358,600	328,900
21	441	15.44	361,400	335,900	17.64	378,400	349,300	19.85	395,400	362,600
22	484	16.96	396,600	368,700	19.36	415,300	383,300	21.78	433,900	398,000
23	529	18.52	433,500	403,000	21.06	453,900	419,000	23.81	474,200	435,000
24	576	20.16	472,000	438,800	23.04	494,200	456,200	25.92	516,000	473,600
25	625	21.88	512,000	476,100	25.00	536,000	495,000	28.13	560,000	514,000
26	676	23.66	554,000	515,000	27.04	580,000	535,000	30.42	606,000	556,000
27	729	25.52	597,000	555,000	29.16	625,000	577,000	32.81	654,000	599,000
28	784	27.44	642,000	597,000	31.36	673,000	621,000	35.28	703,000	645,000
29	841	29.44	689,000	641,000	33.64	722,000	666,000	37.85	754,000	692,000
30	900	31.50	738,000	686,000	36.00	772,000	713,000	40.50	807,000	740,000
31	961	33.64	788,000	732,000	38.44	825,000	761,000	43.25	862,000	790,000
32	1,024	35.84	839,000	780,000	40.06	879,000	811,000	46.08	918,000	842,000
33	1,089	38.12	892,000	830,000	43.56	934,000	862,000	49.01	976,000	895,000
34	1 156	40.46	947,000	881,000	46.24	992,000	916,000	52.02	1,036,000	951,000
35	1,225	42.88	1,004,000	933,000	49.00	1,051,000	970,000	55.13	1,098,000	1,007,000
36	1,296	45.36	1,062,000	987,000	51.84	1,112,000	1,026,000	58.32	1,162,000	1,066,000
37	1,369	47.92	1,122,000	1,043,000	54.76	1,175,000	1,084,000	61.61	1,227,000	1,126,000
38	1,444	50.54	1,183,000	1,100,000	57.76	1,239,000	1,144,000	64.98	1,295,000	1,187,000
39	1,521	53.24	1,246,000	1,159,000	60.84	1,305,000	1,205,000	68.45	1,364,000	1,251,000
40	1,600	56.00	1,311,000	1,219,000	64.00	1,373,000	1,267,000	72.00	1,434,000	1,316,000
41	1,681	58.84	1,378,000	1,281,000	67.24	1,442,000	1,331,000	75.65	1,507,000	1,382,000
42	1,764	61.74	1,446,000	1,344,000	70.56	1,514,000	1,397,000	9.38	1,581,000	1,450,000
43	1,849	64.72	1,515,000	1,408,000	73.56	1,586,000	1,464,000	83.21	1,658,000	1,520,000
44	1,936	67.76	1,587,000	1,475,000	77.44	1,661,000	1,533,000	87.12	1,736,000	1,592,000
45	2,025	70.88	1,659,000	1,543,000	81.00	1,737,000	1,604,000	91.13	1,815,000	1,665,000
46	2,116	74.06	1,734,000	1,612,000	84.64	1,816,000	1,676,000	95.22	1,897,000	1,740,000
47	2,209	77.32	1,810,000	1,683,000	88.36	1,895,000	1,750,000	99.41	1,980,000	1,816,000
48	2,304	80.64	1,888,000	1,755,000	92.16	1,977,000	1,825,000	103.68	2,066,000	1,894,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 600$

Size of column in inches	Area of column in sq. inches	½ % of vertical steel			1 % of vertical steel			1½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	0.50	64,200	63,300	1.00	68,400	66,600	1.50	72,600	69,900
11	121	0.61	77,700	76,600	1.21	82,800	86,600	1.82	87,800	84,600
12	144	0.72	92,400	91,200	1.44	98,500	95,900	2.16	104,500	100,700
13	169	0.85	108,500	107,000	1.69	115,600	112,600	2.54	122,700	118,100
14	196	0.98	125,800	124,100	1.96	134,100	130,500	2.94	142,300	137,000
15	225	1.13	144,400	142,400	2.25	153,900	149,800	3.38	163,300	157,300
16	256	1.28	164,400	162,000	2.56	175,100	170,500	3.84	185,900	178,900
17	289	1.45	185,500	182,900	2.89	197,700	192,500	4.34	209,800	202,000
18	324	1.62	208,000	205,100	3.24	221,600	215,800	4.86	235,200	226,500
19	361	1.81	231,800	228,500	3.61	246,900	240,400	5.42	262,100	252,300
20	400	2.00	256,800	253,200	4.00	273,600	266,400	6.00	290,400	279,600
21	441	2.21	283,100	279,200	4.41	301,600	293,700	6.62	320,200	308,300
22	484	2.42	310,700	306,400	4.84	331,100	322,300	7.26	351,400	338,300
23	529	2.65	339,600	334,900	5.29	361,800	352,300	7.94	384,100	369,800
24	576	2.88	369,800	364,600	5.76	394,000	383,600	8.64	418,200	402,600
25	625	3.12	401,200	395,600	6.25	427,500	416,200	9.38	453,700	436,900
26	676	3.38	434,000	427,900	6.76	462,400	450,200	10.14	490,800	472,500
27	729	3.65	468,000	461,500	7.29	498,600	485,500	10.94	529,000	510,000
28	784	3.92	503,000	496,300	7.84	536,000	522,000	11.76	569,000	548,000
29	841	4.20	540,000	532,000	8.41	575,000	560,000	12.62	611,000	588,000
30	900	4.50	578,000	570,000	9.00	616,000	599,000	13.50	653,000	629,000
31	961	4.81	617,000	608,000	9.61	657,000	640,000	14.42	698,000	672,000
32	1,024	5.12	657,000	648,000	10.24	700,000	682,000	15.36	743,000	716,000
33	1,089	5.45	699,000	689,000	10.89	745,000	725,000	16.34	791,000	761,000
34	1,156	5.78	742,000	732,000	11.56	791,000	770,000	17.34	839,000	808,000
35	1,225	6.13	786,000	775,000	12.25	838,000	816,000	18.38	889,000	856,000
36	1,296	6.48	832,000	820,000	12.96	886,000	863,000	19.44	941,000	906,000
37	1,369	6.85	879,000	867,000	13.69	936,000	912,000	20.54	994,000	957,000
38	1,444	7.22	927,000	914,000	14.44	988,000	962,000	21.66	1,048,000	1,009,000
39	1,521	7.61	976,000	963,000	15.21	1,040,000	1,013,000	22.82	1,104,000	1,063,000
40	1,600	8.00	1,027,000	1,013,000	16.00	1,094,000	1,066,000	24.00	1,162,000	1,118,000
41	1,681	8.41	1,079,000	1,064,000	16.81	1,150,000	1,120,000	25.22	1,220,000	1,175,000
42	1,764	8.82	1,132,000	1,117,000	17.64	1,207,000	1,175,000	26.46	1,281,000	1,233,000
43	1,849	9.25	1,187,000	1,170,000	18.49	1,265,000	1,231,000	27.74	1,342,000	1,292,000
44	1,936	9.68	1,243,000	1,225,000	19.36	1,324,000	1,289,000	29.04	1,406,000	1,353,000
45	2,025	10.13	1,300,000	1,282,000	20.25	1,385,000	1,349,000	30.38	1,470,000	1,415,000
46	2,116	10.58	1,358,000	1,339,000	21.16	1,447,000	1,409,000	31.74	1,536,000	1,479,000
47	2,209	11.05	1,418,000	1,398,000	22.09	1,511,000	1,471,000	33.14	1,604,000	1,544,000
48	2,304	11.52	1,479,000	1,458,000	23.04	1,576,000	1,534,000	34.56	1,673,000	1,610,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 600$

Size of column in inches	Area of column in sq. inches	2% of vertical steel			2½% of vertical steel			3% of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n=15	n=12		n=15	n=12		n=15	n=12
10	100	2.00	76,800	73,200	2.50	81,000	76,500	3.00	85,200	79,800
11	121	2.42	92,900	88,600	3.03	98,000	92,600	3.63	103,100	96,600
12	144	2.88	110,600	105,400	3.60	116,600	110,200	4.32	122,700	114,900
13	169	3.38	129,800	123,700	4.23	136,900	129,300	5.07	144,000	134,900
14	196	3.92	150,500	143,500	4.90	158,800	149,900	5.88	167,000	156,400
15	225	4.50	172,800	164,700	5.63	182,200	172,100	6.75	191,700	179,500
16	256	5.12	196,600	187,400	6.40	207,400	195,800	7.68	218,100	204,300
17	289	5.78	222,000	211,500	7.23	234,100	221,100	8.67	246,200	230,600
18	324	6.48	248,800	237,200	8.10	262,400	247,900	9.72	276,000	258,600
19	361	7.22	277,200	264,300	9.03	292,400	276,200	10.83	307,600	288,100
20	400	8.00	307,200	292,800	10.00	324,000	306,000	12.00	340,800	319,200
21	441	8.82	338,700	322,800	11.03	357,200	337,400	13.23	375,700	351,900
22	484	9.68	371,700	354,300	12.10	392,000	370,300	14.52	412,400	386,200
23	529	10.58	406,300	387,200	13.23	428,500	404,700	15.87	450,700	422,100
24	576	11.52	442,400	421,600	14.40	466,600	440,600	17.28	490,800	459,600
25	625	12.50	480,000	457,500	15.63	506,000	478,100	18.75	532,000	498,700
26	676	13.52	519,000	494,800	16.90	548.000	517,000	20.28	576,000	539,000
27	729	14.58	560,000	534,000	18.23	590,000	558,000	21.87	621,000	582,000
28	784	15.68	602,000	574,000	19.60	635,000	600,000	23.52	668,000	626,000
29	841	16.82	646,000	616,000	21.03	681,000	643,000	25.23	717,000	671,000
30	900	18.00	691,000	659,000	22.50	729,000	688,000	27.00	767,000	718,000
31	961	19.22	738,000	703.000	24.03	778,000	735,000	28.83	819,000	767,000
32	1,024	20.48	786,000	750,000	25.60	829,000	783,000	30.72	872,000	817,200
33	1,089	21.78	836,000	797,000	27.23	882,000	833,000	32.67	928,000	869,000
34	1,156	23.12	888,000	846,000	28.90	936,000	884,000	34.68	985,000	922,000
35	1,225	24.50	941,000	897,000	30.63	992,000	937,000	36.75	1,044,000	978,000
36	1,296	25.92	995,000	949,000	32.40	1,050,000	991,000	38.88	1,104,000	1,034,000
37	1,369	27.38	1,051,000	1,002,000	34.23	1,109,000	1,047,000	41.07	1,166,000	1,092,000
38	1,444	28.88	1,109,000	1,057,000	36.10	1,170,000	1,105,000	43.32	1,230,000	1,152,000
39	1,521	30.42	1,167,000	1,113,000	38.03	1,232,000	1,164,000	45.63	1,296,000	1,214,000
40	1,600	32.00	1,229,000	1,171,000	40.00	1,296,000	1,224,000	48.00	1,363,000	1,277,000
41	1,681	33.62	1,291,000	1,230,000	42.03	1,362,000	1,286,000	50.43	1,432,000	1,341,000
42	1,764	34.28	1,355,000	1,291,000	44.10	1,429,000	1,349,000	52.92	1,503,000	1,408,000
43	1,849	36.98	1,420,000	1,353,000	46.23	1,498,000	1,414,000	55.47	1,575,000	1,476,000
44	1,936	38.72	1,487,000	1,417,000	48.40	1,568,000	1 481,000	57.72	1,649,000	1,545,000
45	2,025	40.50	1,555,000	1,482,000	50.63	1,640,000	1,549,000	60.75	1,725,000	1,616,000
46	2,116	42.32	1,625,000	1,549,000	52.90	1,714,000	1,619,000	63.48	1,803,000	1,689,000
47	2,209	44.18	1,697,000	1,617,000	55.23	1,789,000	1,690,000	66.27	1,882,000	1,763,000
48	2,304	46.08	1,769,000	1,687,000	57.60	1,866,000	1,763,000	69.08	1,963,000	1,839,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 600$

in inches	Area of column in sq. inches	3½ % of vertical steel			4 % of vertical steel			4½ % of vertical steel		
		Area of steel	Load		Area of steel	Load		Area of steel	Load	
			n = 15	n = 12		n = 15	n = 12		n = 15	n = 12
10	100	3.50	89,400	83,100	4.00	93,600	86,400	4.50	97,800	89,700
11	121	4.24	108,200	100,600	4.84	113,300	104,500	5.45	118,300	108,500
12	144	5.04	128,700	119,700	5.76	134,800	124,400	6.48	140,800	129,200
13	169	5.92	151,100	140,400	6.76	158,200	146,000	7.61	165,300	151,600
14	196	6.86	175,200	162,900	7.84	183,500	169,300	8.82	191,700	175,800
15	225	7.88	201,100	187,000	9.00	210,600	194,400	10.13	220,000	201,800
16	256	8.96	228,900	212,700	10.24	239,600	221,200	11.52	250,400	229,600
17	289	10.12	258,400	240,200	11.56	270,500	249,700	13.01	282,600	259,200
18	324	11.34	289,700	269,200	12.96	303,300	279,900	14.58	316,900	290,600
19	361	12.64	322,700	300,000	14.44	337,900	311,900	16.25	353,100	323,800
20	400	14.00	357,600	332,400	16.00	374,400	345,600	18.00	391,200	358,800
21	441	15.44	349,300	366,500	17.64	412,800	381,000	19.85	431,300	395,600
22	484	16.96	432,700	402,200	19.36	453,000	418,200	21.78	473,400	434,100
23	529	18.52	472,900	439,600	21.06	495,100	457,100	23.81	517,000	474,500
24	576	20.16	515,000	478,700	23.04	539,000	497,700	25.92	563,000	517,000
25	625	21.88	559,000	519,000	25.00	585,000	540,000	28.13	611,000	561,000
26	676	23.66	604,000	562,000	27.04	633,000	584,000	30.42	661,000	606,000
27	729	25.52	652,000	606,000	29.16	682,000	630,000	32.81	713,000	654,000
28	784	27.44	701,000	652,000	31.36	734,000	677,000	35.28	767,000	703,000
29	841	29.44	752,000	699,000	33.64	787,000	727,000	37.85	822,000	754,000
30	900	31.50	805,000	748,000	36.00	842,000	778,000	40.50	880,000	807,000
31	961	33.64	859,000	799,000	38.44	899,000	830,000	43.25	940,000	862,000
32	1,024	35.84	915,000	851,000	40.06	958,000	885,000	46.08	1,001,000	919,000
33	1,089	38.12	974,000	905,000	43.56	1,019,000	941,000	49.01	1,065,000	977,000
34	1,156	40.46	1,033,000	961,000	46.24	1,082,000	999,000	52.02	1,131,000	1,037,000
35	1,225	42.88	1,095,000	1,018,000	49.00	1,147,000	1,058,000	55.13	1,198,000	1,099,000
36	1,296	45.36	1,159,000	1,077,000	51.84	1,213,000	1,120,000	58.32	1,267,000	1,163,000
37	1,369	47.92	1,224,000	1,138,000	54.76	1,281,000	1,183,000	61.61	1,339,000	1,228,000
38	1,444	50.54	1,291,000	1,200,000	57.76	1,352,000	1,248,000	64.98	1,412,000	1,295,000
39	1,521	53.24	1,360,000	1,264,000	60.84	1,424,000	1,314,000	68.45	1,488,000	1,364,000
40	1,600	56.00	1,430,000	1,330,000	64.00	1,498,000	1,382,000	72.00	1,565,000	1,435,000
41	1,681	58.84	1,503,000	1,397,000	67.24	1,573,000	1,452,000	75.65	1,644,000	1,508,000
42	1,764	61.74	1,577,000	1,466,000	70.56	1,651,000	1,524,000	79.38	1,725,000	1,582,000
43	1,849	64.72	1,653,000	1,537,000	73.56	1,731,000	1,598,000	83.21	1,808,000	1,659,000
44	1,936	67.76	1,731,000	1,609,000	77.44	1,812,000	1,673,000	87.12	1,893,000	1,737,000
45	2,025	70.88	1,810,000	1,683,000	81.00	1,895,000	1,750,000	91.13	1,980,000	1,816,000
46	2,116	74.06	1,892,000	1,758,000	84.64	1,981,000	1,828,000	95.22	2,069,000	1,898,000
47	2,209	77.32	1,975,000	1,836,000	88.36	2,068,000	1,909,000	99.41	2,160,000	1,981,000
48	2,304	80.64	2,060,000	1,915,000	92.16	2,157,000	1,991,000	103.68	2,253,000	2,067,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 650$

Size of column in inches	Area of column in sq. inches	½ % of vertical steel				1 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	0.50	69,500	68,600	67,900	1.00	74,100	72,100	70,800
11	121	0.61	84,200	83,000	82,200	1.21	89,700	87,300	85,700
12	144	0.72	100,200	98,700	97,800	1.44	106,700	103,900	102,000
13	169	0.85	117,500	115,900	114,800	1.69	125,200	121,900	119,700
14	196	0.98	136,300	134,400	133,100	1.96	145,200	141,400	138,900
15	225	1.13	156,500	154,300	152,800	2.25	166,700	162,300	159,400
16	256	1.28	178,000	175,600	173,900	2.56	189,700	184,700	181,400
17	289	1.45	201,000	198,200	196,300	2.89	214,100	208,500	204,800
18	324	1.62	225,300	222,200	220,100	3.24	240,100	233,800	229,600
19	361	1.81	251,100	247,600	245,200	3.61	267,500	260,500	255,800
20	400	2.00	278,200	274,300	271,700	4.00	296,400	288,600	283,400
21	441	2.21	306,700	302,400	299,500	4.41	326,800	318,200	312,400
22	484	2.42	336,600	331,900	328,800	4.84	358,600	349,200	342,900
23	529	2.65	367,900	362,800	359,300	5.29	392,000	381,700	374,800
24	576	2.88	400,600	395,000	391,200	5.76	426,800	415,600	408,100
25	625	3.12	434,700	428,600	424,500	6.25	463,100	450,900	442,800
26	676	3.38	470,200	463,600	459,200	6.76	501,000	487,700	478,900
27	729	3.65	507,000	499,900	495,200	7.29	540,000	526,000	516,000
28	784	3.92	545,000	538,000	533,000	7.84	581,000	566,000	555,000
29	841	4.20	585,000	577,000	571,000	8.41	623,000	607,000	596,000
30	900	4.50	626,000	617,000	611,000	9.00	667,000	649,000	638,000
31	961	4.81	668,000	659,000	653,000	9.61	712,000	693,000	681,000
32	1,024	5.12	712,000	702,000	696,000	10.24	759,000	739,000	726,000
33	1,089	5.45	757,000	747,000	740,000	10.89	807,000	786 000	772,000
34	1,156	5.78	804,000	793,000	785,000	11.56	857,000	834,000	819,000
35	1,225	6.13	852,000	840,000	832,000	12.25	908,000	884,000	868,000
36	1,296	6.48	901,000	889,000	880,000	12.96	960,000	935,000	918,000
37	1,369	6.85	952,000	939,000	930,000	13.69	1,014,000	988,000	970,000
38	1,444	7.22	1,004,000	990,000	981,000	14.44	1,070,000	1,042,000	1,023,000
39	1,521	7.61	1,058,000	1,043,000	1,033,000	15.21	1,127,000	1,097,000	1,078,000
40	1,600	8.00	1,113,000	1,097,000	1,087,000	16.00	1,186,000	1,154,000	1,134,000
41	1,681	8.41	1,169,000	1,153,000	1,142,000	16.81	1,246,000	1,213,000	1,191,000
42	1,764	8.82	1,227,000	1,210,000	1,198,000	17.64	1,307,000	1,273,000	1,250,000
43	1,849	9.25	1,286,000	1,268,000	1,256,000	18.49	1,370,000	1,334,000	1,310,000
44	1,936	9.68	1,346,000	1,328,000	1,315,000	19.36	1,435,000	1,397,000	1,372,000
45	2,025	10.13	1,408,000	1,389,000	1,375,000	20.25	1,501,000	1,461,000	1,435,000
46	2,116	10.58	1,472,000	1,451,000	1,437,000	21.16	1,568,000	1,527,000	1,499,000
47	2,209	11.05	1,536,000	1,515,000	1,500,000	22.09	1,637,000	1,594,000	1,565,000
48	2,304	11.52	1,602,000	1,580,000	1,565,000	23.04	1,707,000	1,662,000	1,632,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 650$

Size of column in inches	Area of column in sq. inches	1½ % of vertical steel				2 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	1.50	78,600	75,700	73,800	2.00	83,200	79,300	76,700
11	121	1.82	95,200	91,600	89,300	2.42	100,700	96,000	92,800
12	144	2.16	113,300	109,000	106,200	2.88	119,800	114,200	110,400
13	169	2.54	132,900	128,000	124,700	3.38	140,600	134,000	129,600
14	196	2.94	154,200	148,400	144,600	3.92	163,100	155,400	150,300
15	225	3.38	177,000	170,400	166,000	4.50	187,200	178,400	172,600
16	256	3.84	201,300	193,900	188,900	5.12	213,000	203,000	196,400
17	289	4.34	227,300	218,800	213,200	5.78	240,400	229,200	221,700
18	324	4.86	254,800	245,300	239,000	6.48	269,600	256,900	248,500
19	361	5.42	283,900	273,400	266,300	7.22	300,400	286,300	276,900
20	400	6.00	314,600	302,900	295,100	8.00	332,800	317,200	306,800
21	441	6.62	346,800	333,900	325,300	8.82	366,900	349,700	338,200
22	484	7.26	380,700	366,500	357,100	9.68	402,700	383,800	371,200
23	529	7.94	416,100	400,600	390,300	10.58	440,100	419,500	405,700
24	576	8.64	453,000	436,200	424,900	11.52	479,200	456,800	441,800
25	625	9.38	491,600	473,300	461,100	12.50	520,000	495,600	479,400
26	676	10.14	532,000	512,000	498,700	13.52	562,000	536,000	518,000
27	729	10.94	573,000	552,000	538,000	14.58	607,000	578,000	559,000
28	784	11.76	617,000	594,000	578,000	15.68	652,000	622,000	601,000
29	841	12.62	661,000	637,000	620,000	16.82	700,000	667,000	645,000
30	900	13.50	708,000	682,000	664,000	18.00	749,000	714,000	690,000
31	961	14.42	756,000	728,000	709,000	19.22	800,000	762,000	737,000
32	1,024	15.36	805,000	775,000	755,000	20.48	852,000	812,000	785,000
33	1,089	16.34	856,000	825,000	803,000	21.78	906,000	864,000	835,000
34	1,156	17.34	909,000	875,000	853,000	23.12	962,000	917,000	887,000
35	1,225	18.38	963,000	928,000	904,000	24.50	1,019,000	971,000	940,000
36	1,296	19.44	1,019,000	981,000	956,000	25.92	1,078,000	1,028,000	994,000
37	1,369	20.54	1,077,000	1,037,000	1,010,000	27.38	1,139,000	1,086,000	1,050,000
38	1,444	21.66	1,136,000	1,093,000	1,065,000	28.88	1,201,000	1,145,000	1,108,000
39	1,521	22.82	1,196,000	1,152,000	1,122,000	30.42	1,265,000	1,206,000	1,167,000
40	1,600	24.00	1,258,000	1,212,000	1,180,000	32.00	1,331,000	1,269,000	1,227,000
41	1,681	25.22	1,322,000	1,273,000	1,240,000	33.62	1,399,000	1,333,000	1,289,000
42	1,764	26.46	1,387,000	1,336,000	1,301,000	34.28	1,468,000	1,399,000	1,353,000
43	1,849	27.74	1,454,000	1,400,000	1,364,000	36.98	1,538,000	1,466,000	1,418,000
44	1,936	29.04	1,523,000	1,466,000	1,428,000	38.72	1,611,000	1,535,000	1,485,000
45	2,025	30.38	1,593,000	1,533,000	1,494,000	40.50	1,685,000	1,606,000	1,553, 00
46	2,116	31.74	1,664,000	1,602,000	1,561,000	42.32	1,761,000	1,678,000	1,623,000
47	2,209	33.14	1,737,000	1,673,000	1,630,000	44.18	1,838,000	1,752,000	1,694,000
48	2,304	34.56	1,812,000	1,745,000	1,700,000	46.08	1,917,000	1,827,000	1,767,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 650$

Size of column in inches	Area of column in sq. inches	2½% of vertical steel				3% of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n=15	n=12	n=10		n=15	n=12	n=10
10	100	2.50	87,700	82,900	79,600	3.00	92,300	86,400	82,500
11	121	3.03	106,200	100,300	96,300	3.63	111,700	104,600	99,900
12	144	3.60	126,400	119,300	114,700	4.32	132,900	124,500	118,900
13	169	4.23	148,300	140,100	134,600	5.07	156,000	146,101	139,500
14	196	4.90	172,000	162,400	156,100	5.88	180,900	169,400	161,800
15	225	5.63	197,400	186,500	179,200	6.75	207,700	194,500	185,700
16	256	6.40	224,600	212,200	203,800	7.68	236,300	221,300	211,300
17	289	7.23	253,600	239,500	230,100	8.67	266,700	249,800	238,600
18	324	8.10	284,300	268,500	258,000	9.72	299,100	280,100	267,500
19	361	9.03	316,800	299,200	287,400	10.83	333,200	312,100	298,000
20	400	10.00	351,000	331,500	318,500	12.00	369,200	345,800	330,200
21	441	11.03	387,000	365,500	351,100	13.23	407,000	381,200	364,000
22	484	12.10	424,700	401,100	385,400	14.52	446,700	418,400	399,500
23	529	13.23	464,200	438,400	421,200	15.87	488,300	457,300	436,700
24	576	14.40	505,000	477,400	458,600	17.28	532,000	498,000	475,500
25	625	15.63	548,000	518,000	497,700	18.75	577,000	540,000	516,000
26	676	16.90	593,000	560,000	538,000	20.28	624,000	584,000	558,000
27	729	18.23	640,000	604,000	580,000	21.87	673,000	630,000	602,000
28	784	19.60	688,000	650,000	624,000	23.52	724,000	678,000	647,000
29	841	21.03	738,000	697,000	670,000	25.23	776,000	727,000	694,000
30	900	22.50	790,000	746,000	717,000	27.00	831,000	778,000	743,000
31	961	24.03	843,000	796,000	765,000	28.83	887,000	831,000	793,000
32	1,024	25.60	899,000	849,000	815,000	30.72	945,000	885,000	845,000
33	1,089	27.23	956,000	903,000	867,000	32.67	1,005,000	941,000	899,000
34	1,156	28.90	1,014,000	958,000	920,000	34.68	1,067,000	999,000	954,000
35	1,225	30.63	1,075,000	1,015,000	975,000	36.75	1,131,000	1,059,000	1,011,000
36	1,296	32.40	1,137,000	1,074,000	1,032,000	38.88	1,196,000	1,120,000	1,070,000
37	1,369	34.23	1,201,000	1,135,000	1,090,000	41.07	1,264,000	1,184,000	1,130,000
38	1,444	36.10	1,267,000	1,197,000	1,150,000	43.32	1,333,000	1,248,000	1,192,000
39	1,521	38.03	1,335,000	1,261,000	1,211,000	45.63	1,404,000	1,315,000	1,256,000
40	1,600	40.00	1,404,000	1,326,000	1,274,000	48.00	1,477,000	1,383,000	1,321,000
41	1,681	42.03	1,475,000	1,393,000	1,338,000	50.43	1,552,000	1,453,000	1,388,000
42	1,764	44.10	1,548,000	1,462,000	1,405,000	52.92	1,628,000	1,525,000	1,456,000
43	1,849	46.23	1,622,000	1,532,000	1,472,000	55.47	1,707,000	1,598,000	1,526,000
44	1,936	48.40	1,699,000	1,604,000	1,542,000	57.72	1,787,000	1,674,000	1,598,000
45	2,025	50.63	1,777,000	1,678,000	1,612,000	60.75	1,869,000	1,751,000	1,672,000
46	2,116	52.90	1,857,000	1,754,000	1,685,000	63.48	1,953,000	1,829,000	1,747,000
47	2,209	55.23	1,938,000	1,831,000	1,759,000	66.27	2,039,000	1,910,000	1,824,000
48	2,304	57.60	2,022,000	1,909,000	1,835,000	69.08	2,127,000	1,992,000	1,902,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 650$

in inches	Area of column in sq. inches	3½ % of vertical steel				4 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
0	100	3.50	96,800	90,000	85,500	4.00	101,400	93,600	88,400
1	121	4.24	117,200	108,900	103,400	4.84	122,700	113,300	107,000
2	144	5.04	139,500	129,600	123,100	5.76	146,000	134,800	127,300
3	169	5.92	163,700	152,100	144,500	6.76	171,400	158,200	149,400
4	196	6.86	189,800	176,400	167,500	7.84	198,700	183,500	173,300
5	225	7.88	217,900	202,600	192,300	9.00	228,100	210,600	198,900
6	256	8.96	247,900	230,500	218,800	10.24	259,600	239,600	226,300
7	289	10.12	279,900	260,200	247,000	11.56	293,000	270,500	255,500
8	324	11.34	313,800	291,700	276,900	12.96	328,500	303,300	286,400
9	361	12.64	349,600	325,000	308,600	14.40	366,100	337,900	319,100
0	400	14.00	387,400	360,100	341,900	16.00	405,600	374,400	353,600
1	441	15.44	427,100	397,000	376,900	17.64	447,200	412,800	389,800
2	484	16.96	468,800	435,700	413,700	19.36	490,800	453,000	427,900
3	529	18.52	512,000	476,200	452,200	21.06	536,000	495,100	467,600
4	576	20.16	557,900	519,000	492,300	23.04	584,000	539,000	509,000
5	625	21.88	605,000	563,000	534,000	25.00	634,000	585,000	552,000
6	676	23.66	655,000	609,000	578,000	27.04	685,000	633,000	597,000
7	729	25.52	706,000	656,000	623,000	29.16	739,000	682,000	644,000
8	784	27.44	759,000	706,000	670,000	31.36	795,000	734,000	693,000
9	841	29.44	815,000	757,000	719,000	33.64	853,000	787,000	743,000
0	900	31.50	872,000	810,000	769,000	36.00	913,000	842,000	796,000
1	961	33.64	931,000	865,000	821,000	38.44	974,000	899,000	850,000
2	1,024	35.84	992,000	922,000	875,000	40.06	1,038,000	958,000	905,000
3	1,089	38.12	1,055,000	980,000	931,000	43.56	1,104,000	1,019,000	963,000
4	1,156	40.46	1,120,000	1,041,000	988,000	46.24	1,172,000	1,082,000	1,022,000
5	1,225	42.88	1,186,000	1,103,000	1,047,000	49.00	1,242,000	1,147,000	1,083,000
6	1,296	45.36	1,255,000	1,167,000	1,108,000	51.84	1,314,000	1,213,000	1,146,000
7	1,369	47.92	1,326,000	1,232,000	1,170,000	54.76	1,388,000	1,281,000	1,210,000
8	1,444	50.54	1,399,000	1,300,000	1,234,000	57.76	1,464,000	1,352,000	1,276,000
9	1,521	53.24	1,473,000	1,369,000	1,300,000	60.84	1,542,000	1,424,000	1,345,000
0	1,600	56.00	1,550,000	1,440,000	1,368,000	64.00	1,622,000	1,498,000	1,414,000
1	1,681	58.84	1,628,000	1,513,000	1,437,000	67.24	1,705,000	1,573,000	1,486,000
2	1,764	61.74	1,708,000	1,588,000	1,508,000	70.56	1,789,000	1,651,000	1,559,000
3	1,849	64.72	1,791,000	1,665,000	1,580,000	73.56	1,875,000	1,731,000	1,635,000
4	1,936	67.76	1,875,000	1,743,000	1,655,000	77.44	1,963,000	1,812,000	1,711,000
5	2,025	70.88	1,961,000	1,823,000	1,731,000	81.00	2,053,000	1,895,000	1,790,000
6	2,116	74.06	2,049,000	1,905,000	1,809,000	84.64	2,146,000	1,981,000	1,871,000
7	2,209	77.32	2,139,000	1,989,000	1,888,000	88.36	2,240,000	2,068,000	1,953,000
8	2,304	80.64	2,231,000	2,074,000	1,969,000	92.16	2,336,000	2,157,000	2,037,000

SQUARE COLUMNS

(Total loads in pounds on net area)

$f_c = 700$

Size of column in inches	Area of column in sq. inches	½% of vertical steel				1% of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	0.50	74,900	73,800	73,100	1.00	79,800	77,700	76,300
11	121	0.61	90,600	89,400	88,500	1.21	96,600	94,000	92,300
12	144	0.72	107,900	106,300	105,300	1.44	114,900	111,900	109,900
13	169	0.85	126,600	124,800	123,600	1.69	134,900	131,300	128,900
14	196	0.98	146,800	144,700	143,400	1.96	156,400	152,300	149,500
15	225	1.13	168,500	166,200	164,600	2.25	179,500	174,800	171,700
16	256	1.28	191,700	189,100	187,300	2.56	204,300	198,900	195,300
17	289	1.45	216,500	213,400	211,400	2.89	230,600	224,600	220,500
18	324	1.62	242,700	239,300	237,000	3.24	258,600	251,700	247,200
19	361	1.81	270,400	266,600	264,100	3.61	288,100	280,500	275,400
20	400	2.00	299,600	295,400	292,600	4.00	319,200	310,800	305,200
21	441	2.21	330,300	325,700	322,600	4.41	351,900	342,700	336,500
22	484	2.42	362,500	357,400	354,000	4.84	386,200	376,100	369,300
23	529	2.65	396,200	390,700	387,000	5.29	422,100	411,000	403,600
24	576	2.88	431,400	425,400	421,300	5.76	459,600	447,600	439,500
25	625	3.12	468,100	461,600	457,200	6.25	498,700	485,600	476,900
26	676	3.38	506,000	499,200	494,500	6.76	539,000	525,000	516,000
27	729	3.65	546,000	538,000	533,000	7.29	582,000	566,000	556,000
28	784	3.92	587,000	579,000	573,000	7.84	626,000	609,000	598,000
29	841	4.20	630,000	621,000	615,000	8.41	671,000	653,000	642,000
30	900	4.50	674,000	665,000	658,000	9.00	718,000	699,000	687,000
31	961	4.81	720,000	710,000	703,000	9.61	767,000	747,000	733,000
32	1,024	5.12	767,000	756,000	749,000	10.24	817,000	796,000	781,000
33	1,089	5.45	816,000	804,000	797,000	10.89	869,000	846,000	831,000
34	1,156	5.78	866,000	854,000	846,000	11.56	922,000	898,000	882,000
35	1,225	6.13	918,000	905,000	896,000	12.25	978,000	952,000	935,000
36	1,296	6.48	971,000	957,000	948,000	12.96	1,034,000	1,007,000	989,000
37	1,369	6.85	1,025,000	1,011,000	1,001,000	13.69	1,092,000	1,064,000	1,045,000
38	1,444	7.22	1,082,000	1,066,000	1,056,000	14.44	1,152,000	1,122,000	1,102,000
39	1,521	7.61	1,139,000	1,123,000	1,113,000	15.21	1,214,000	1,182,000	1,161,000
40	1,600	8.00	1,198,000	1,182,000	1,170,000	16.00	1,277,000	1,243,000	1,221,000
41	1,681	8.41	1,259,000	1,241,000	1,230,000	16.81	1,341,000	1,306,000	1,283,000
42	1,764	8.82	1,321,000	1,303,000	1,290,000	17.64	1,408,000	1,371,000	1,346,000
43	1,849	9.25	1,385,000	1,365,000	1,353,000	18.49	1,476,000	1,437,000	1,411,000
44	1,936	9.68	1,450,000	1,430,000	1,416,000	19.36	1,545,000	1,504,000	1,477,000
45	2,025	10.13	1,517,000	1,495,000	1,481,000	20.25	1,616,000	1,573,000	1,545,000
46	2,116	10.58	1,585,000	1,563,000	1,548,000	21.16	1,689,000	1,644,000	1,615,000
47	2,209	11.05	1,655,000	1,631,000	1,616,000	22.09	1,763,000	1,716,000	1,685,000
48	2,304	11.52	1,726,000	1,702,000	1,685,000	23.04	1,839,000	1,790,000	1,758,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 700$

Size of column in inches	Area of column in sq. inches	1½% of vertical steel				2% of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	1.50	84,700	81,500	79,400	2.00	89,600	85,400	82,600
11	121	1.82	102,500	98,700	96,100	2.42	108,400	103,300	99,900
12	144	2.16	122,000	117,400	114,400	2.88	129,000	123,000	118,900
13	169	2.54	143,100	137,800	134,300	3.38	151,400	144,300	139,600
14	196	2.94	166,000	159,800	155,700	3.92	175,600	167,400	161,900
15	225	3.38	190,600	183,500	178,800	4.50	201,600	192,100	185,800
16	256	3.84	216,800	208,800	203,400	5.12	229,400	218,600	211,500
17	289	4.34	244,800	235,700	229,600	5.78	258,900	246,800	238,700
18	324	4.86	274,400	264,200	257,400	6.48	290,300	276,700	267,600
19	361	5.42	305,800	294,400	286,800	7.22	323,500	308,300	298,200
20	400	6.00	338,800	326,200	317,800	8.00	358,400	341,600	330,400
21	441	6.62	373,500	359,600	350,400	8.82	395,100	376,600	364,300
22	484	7.26	409,900	394,700	384,500	9.68	433,700	413,300	399,800
23	529	7.94	448,100	431,400	420,300	10.58	474,000	451,800	437,000
24	576	8.64	487,900	469,700	457,600	11.52	516,000	491,900	475,800
25	625	9.38	529,000	510,000	496,600	12.50	560,000	534,000	516,000
26	676	10.14	573,000	551,000	537,000	13.52	606,000	577,000	558,000
27	729	10.94	617,000	594,000	579,000	14.58	653,000	623,000	602,000
28	784	11.76	664,000	639,000	623,000	15.68	702,000	670,000	648,000
29	841	12.62	712,000	686,000	668,000	16.82	754,000	718,000	695,000
30	900	13.50	762,000	734,000	715,000	18.00	806,000	769,000	743,000
31	961	14.42	814,000	784,000	764,000	19.22	861,000	821,000	794,000
32	1,024	15.36	867,000	835,000	814,000	20.48	918,000	874,000	846,000
33	1,089	16.34	922,000	888,000	865,000	21.78	976,000	930,000	900,000
34	1,156	17.34	979,000	943,000	918,000	23.12	1,036,000	987,000	955,000
35	1,225	18.38	1,038,000	999,000	973,000	24.50	1,098,000	1,046,000	1,012,000
36	1,296	19.44	1,098,000	1,057,000	1,030,000	25.92	1,161,000	1,107,000	1,070,000
37	1,369	20.54	1,160,000	1,116,000	1,088,000	27.38	1,227,000	1,169,000	1,131,000
38	1,444	21.66	1,223,000	1,178,000	1,147,000	28.88	1,294,000	1,233,000	1,193,000
39	1,521	22.82	1,288,000	1,240,000	1,208,000	30.42	1,363,000	1,299,000	1,256,000
40	1,600	24.00	1,355,000	1,305,000	1,271,000	32.00	1,434,000	1,366,000	1,322,000
41	1,681	25.22	1,424,000	1,371,000	1,336,000	33.62	1,506,000	1,436,000	1,389,000
42	1,764	26.46	1,494,000	1,439,000	1,401,000	34.28	1,581,000	1,506,000	1,457,000
43	1,849	27.74	1,566,000	1,508,000	1,469,000	36.98	1,657,000	1,579,000	1,527,000
44	1,936	29.04	1,640,000	1,579,000	1,538,000	38.72	1,735,000	1,653,000	1,599,000
45	2,025	30.38	1,715,000	1,651,000	1,609,000	40.50	1,814,000	1,729,000	1,673,000
46	2,116	31.74	1,792,000	1,726,000	1,681,000	42.32	1,896,000	1,807,000	1,748,000
47	2,209	33.14	1,871,000	1,801,000	1,755,000	44.18	1,979,000	1,886,000	1,825,000
48	2,304	34.56	1,951,000	1,879,000	1,831,000	46.08	2,064,000	1,968,000	1,903,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 700$

Size of column in inches	Area of column in sq. inches	2½ % of vertical steel				3 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	2.50	94,500	89,200	85,700	3.00	99,400	93,100	88,900
11	121	3.03	114,300	108,000	103,800	3.63	120,300	112,700	107,600
12	144	3.60	136,100	128,500	123,500	4.32	143,100	134,100	128,000
13	169	4.23	159,700	150,800	144,900	5.07	168,000	157,300	150,200
14	196	4.90	185,200	174,900	168,100	5.88	194,800	182,500	174,200
15	225	5.63	212,600	200,800	192,900	6.75	223,600	209,500	200,000
16	256	6.40	241,900	228,500	219,500	7.68	254,500	238,300	227,600
17	289	7.23	273,100	257,900	247,800	8.67	287,300	269,100	256,900
18	324	8.10	306,200	289,200	277,800	9.72	322,100	301,600	288,000
19	361	9.03	341,100	322,200	309,600	10.83	358,800	336,100	320,900
20	400	10.00	378,000	357,000	343,000	12.00	397,600	372,400	355,600
21	441	11.03	416,700	393,600	378,200	13.23	438,400	410,600	392,000
22	484	12.10	457,400	432,000	415,000	14.52	481,100	450,600	430,300
23	529	13.23	499,900	472,100	453,600	15.87	526,000	492,500	470,300
24	576	14.40	544,000	514,000	493,900	17.28	573,000	536,000	512,000
25	625	15.63	591,000	558,000	536,000	18.75	621,000	582,000	556,000
26	676	16.90	639,000	603,000	580,000	20.28	672,000	629,000	601,000
27	729	18.23	689,000	651,000	625,000	21.87	725,000	679,000	648,000
28	784	19.60	741,000	700,000	672,000	23.52	779,000	730,000	697,000
29	841	21.03	795,000	751,000	721,000	25.23	836,000	783,000	748,000
30	900	22.50	850,000	803,000	772,000	27.00	895,000	838,000	800,000
31	961	24.03	908,000	858,000	824,000	28.83	955,000	895,000	854,000
32	1,024	25.60	968,000	914,000	878,000	30.72	1,018,000	953,000	910,000
33	1,089	27.23	1,029,000	972,000	934,000	32.67	1,082,000	1,014,000	968,000
34	1,156	28.90	1,092,000	1,032,000	991,000	34.68	1,149,000	1,076,000	1,028,000
35	1,225	30.63	1,158,000	1,093,000	1,050,000	36.75	1,218,000	1,140,000	1,089,000
36	1,296	32.40	1,225,000	1,157,000	1,111,000	38.88	1,288,000	1,207,000	1,152,000
37	1,369	34.23	1,294,000	1,222,000	1,174,000	41.07	1,361,000	1,275,000	1,217,000
38	1,444	36.10	1,365,000	1,289,000	1,238,000	43.32	1,435,000	1,344,000	1,284,000
39	1,521	38.03	1,437,000	1,357,000	1,304,000	45.63	1,512,000	1,416,000	1,352,000
40	1,600	40.00	1,512,000	1,428,000	1,372,000	48.00	1,590,000	1,490,000	1,422,000
41	1,681	42.03	1,589,000	1,500,000	1,441,000	50.43	1,671,000	1,565,000	1,494,000
42	1,764	44.10	1,667,000	1,574,000	1,513,000	52.92	1,753,000	1,642,000	1,568,000
43	1,849	46.23	1,747,000	1,650,000	1,586,000	55.47	1,838,000	1,721,000	1,644,000
44	1,936	48.40	1,830,000	1,728,000	1,660,000	57.72	1,924,000	1,802,000	1,721,000
45	2,025	50.63	1,914,000	1,807,000	1,736,000	60.75	2,013,000	1,885,000	1,800,000
46	2,116	52.90	2,000,000	1,889,000	1,814,000	62.48	2,103,000	1,970,000	1,881,000
47	2,209	55.23	2,088,000	1,972,000	1,894,000	66.27	2,196,000	2,057,000	1,964,000
48	2,304	57.60	2,177,000	2,056,000	1,976,000	69.08	2,290,000	2,145,000	2,048,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 700$

Size of column in inches	Area of column in sq. inches	3½ % of vertical steel				4 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	3.50	104,300	96,900	92,000	4.00	109,200	100,800	95,200
11	121	4.24	126,200	117,300	111,400	4.84	132,100	122,000	115,200
12	144	5.04	150,200	139,600	132,600	5.76	157,200	145,200	137,100
13	169	5.92	176,300	163,800	155,600	6.76	184,500	170,400	160,900
14	196	6.86	204,400	190,000	180,400	7.84	214,000	197,600	186,600
15	225	7.88	234,700	218,100	207,100	9.00	245,700	226,800	214,200
16	256	8.96	267,000	248,200	235,600	10.24	279,600	258,000	243,700
17	289	10.12	301,400	280,200	266,000	11.56	315,600	291,300	275,100
18	324	11.34	337,900	314.100	298,200	12.96	353,800	326,600	308,400
19	361	12.64	376,500	350,000	332,300	14.44	394,200	363,900	343,700
20	400	14.00	417,200	387,800	368,200	16.00	436,800	403,200	380,800
21	441	15.44	460,000	427,500	405,900	17.64	481,600	444,500	419,800
22	484	16.96	505,000	469,200	445,500	19.36	529,000	487,900	460,800
23	529	18.52	552,000	513,000	486,900	21.06	578,000	533,000	504,000
24	576	20.16	601,000	558,000	530,000	23.04	629,000	581,000	548,000
25	625	21.88	652,000	606,000	575,000	25.00	682,000	630,000	595,000
26	676	23.66	705,000	655,000	622,000	27.04	738,000	681,000	644,000
27	729	25.52	760,000	707,000	671,000	29.16	796,000	735,000	694,000
28	784	27.44	818,000	760,000	722,000	31.36	856,000	790,000	746,000
29	841	29.44	877,000	815,000	774,000	33.64	918,000	848,000	801,000
30	900	31.50	939,000	873,000	828,000	36.00	983,000	907,000	857,000
31	961	33.64	1,002,000	932,000	885,000	38.44	1,049,000	969,000	915,000
32	1,024	35.84	1,068,000	993,000	943,000	40.06	1,118,000	1,032,000	975,000
33	1,089	38.12	1,136,000	1,056,000	1,002,000	43.56	1,189,000	1,098,000	1,037,000
34	1,156	40.46	1,206,000	1,121,000	1,064,000	46.24	1,262,000	1,165,000	1,101,000
35	1,225	42.88	1,278,000	1,188,000	1,128,000	49.00	1,338,000	1,235,000	1,166,000
36	1,296	45.36	1,352,000	1,256,000	1,193,000	51.84	1,415,000	1,306,000	1,234,000
37	1,369	47.92	1,428,000	1,327,000	1,260,000	54.76	1,495,000	1,380,000	1,303,000
38	1,444	50.54	1,506,000	1,400,000	1,329,000	57.76	1,577,000	1,456,000	1,375,000
39	1,521	53.24	1,586,000	1,475,000	1,400,000	60.84	1,661,000	1,533,000	1,448,000
40	1,600	56.00	1,669,000	1,551,000	1,473,000	64.00	1,747,000	1,613,000	1,523,000
41	1,681	58.84	1,753,000	1,630,000	1,547,000	67.24	1,836,000	1,694,000	1,600,000
42	1,764	61.74	1,840,000	1,710,000	1,624,000	70.56	1,926,000	1,778,000	1,679,000
43	1,849	64.72	1,929,000	1,793,000	1,702,000	73.56	2,019,000	1,864,000	1,760,000
44	1,936	67.76	2,019,000	1,877,000	1,782,000	77.44	2,114,000	1,951,000	1,843,000
45	2,025	70.88	2,112,000	1,963,000	1,864,000	81.00	2,211,000	2,041,000	1,928,000
46	2,116	74.06	2,207,000	2,051,000	1,948,000	84.64	2,311,000	2,133,000	2,014,000
47	2,209	77.32	2,304,000	2,142,000	2,033,000	88.36	2,412,000	2,227,000	2,103,000
48	2,304	80.64	2,403,000	2,234,000	2,121,000	92.16	2,516,000	2,322,000	2,193,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 750$

Size of column in inches	Area of column in sq. inches	½ % of vertical steel				1 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	0.50	80,200	79,100	78,400	1.00	85,500	83,200	81,700
11	121	0.61	97,100	95,700	94,800	1.21	103,500	100,700	98,900
12	144	0.72	115,600	113,900	112,900	1.44	123,100	119,900	117,700
13	169	0.85	135,600	133,700	132,500	1.69	144,500	140,700	138,200
14	196	0.98	157,300	155,100	153,600	1.96	167,600	163,200	160,200
15	225	1.13	180,600	178,000	176,300	2.25	192,400	187,300	183,900
16	256	1.28	205,400	202,600	200,600	2.56	218,900	213,100	209,300
17	289	1.45	231,900	228,700	226,500	2.89	247,100	240,600	236,300
18	324	1.62	260,000	256,400	253,900	3.24	277,000	269,700	264,900
19	361	1.81	289,700	285,600	282,900	3.61	308,700	300,500	295,100
20	400	2.00	321,000	316,500	313,500	4.00	342,000	333,000	327,000
21	441	2.21	353,900	348,900	345,600	4.41	377,100	367,100	360,500
22	484	2.42	388,400	383,000	379,300	4.84	413,800	402,900	395,700
23	529	2.65	424,500	418,600	414,600	5.29	452,300	440,400	432,500
24	576	2.88	462,200	455,800	451,400	5.76	492,500	479,500	470,900
25	625	3.12	502,000	494,500	489,800	6.25	534,000	520,000	511,000
26	676	3.38	542,000	535,000	530,000	6.76	578,000	563,000	553,000
27	729	3.65	585,000	577,000	571,000	7.29	623,000	607,000	596,000
28	784	3.92	629,000	620,000	614,000	7.84	670,000	653,000	641,000
29	841	4.20	675,000	665,000	659,000	8.41	719,000	700,000	688,000
30	900	4.50	722,000	712,000	705,000	9.00	769,000	749,000	736,000
31	961	4.81	771,000	760,000	753,000	9.61	822,000	800,000	786,000
32	1,024	5.12	822,000	810,000	803,000	10.24	876,000	852,000	837,000
33	1,089	5.45	874,000	862,000	854,000	10.89	931,000	907,000	890,000
34	1,156	5.78	928,000	915,000	906,000	11.56	988,000	962,000	945,000
35	1,225	6.13	983,000	969,000	960,000	12.25	1,047,000	1,020,000	1,001,000
36	1,296	6.48	1,040,000	1,025,000	1,016,000	12.96	1,108,000	1,079,000	1,059,000
37	1,369	6.85	1,099,000	1,083,000	1,073,000	13.69	1,170,000	1,140,000	1,119,000
38	1,444	7.22	1,159,000	1,143,000	1,132,000	14.44	1,235,000	1,202,000	1,180,000
39	1,521	7.61	1,221,000	1,203,000	1,192,000	15.21	1,300,000	1,266,000	1,243,000
40	1,600	8.00	1,284,000	1,266,000	1,254,000	16.00	1,368,000	1,332,000	1,308,000
41	1,681	8.41	1,349,000	1,330,000	1,317,000	16.81	1,437,000	1,399,000	1,374,000
42	1,764	8.82	1,416,000	1,396,000	1,383,000	17.64	1,508,000	1,469,000	1,442,000
43	1,849	9.25	1,484,000	1,463,000	1,449,000	18.49	1,581,000	1,539,000	1,512,000
44	1,936	9.68	1,554,000	1,532,000	1,517,000	19.36	1,655,000	1,612,000	1,583,000
45	2,025	10.13	1,625,000	1,602,000	1,587,000	20.25	1,731,000	1,686,000	1,655,000
46	2,116	10.58	1,698,000	1,674,000	1,658,000	21.16	1,809,000	1,762,000	1,730,000
47	2,209	11.05	1,773,000	1,748,000	1,731,000	22.09	1,889,000	1,839,000	1,806,000
48	2,304	11.52	1,849,000	1,823,000	1,806,000	23.04	1,970,000	1,918,000	1,884,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 750$

Side in inches	Area of column in sq. inches	1½ % of vertical steel				2 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	1.50	90,700	87,400	85,100	2.00	96,000	91,500	88,500
11	121	1.82	109,800	105,700	103,000	2.42	116,200	110,700	107,100
12	144	2.16	130,700	125,800	122,600	2.88	138,200	131,800	127,400
13	169	2.54	153,400	147,700	143,900	3.38	162,200	154,600	149,600
14	196	2.94	177,900	171,300	166,800	3.92	188,200	179,300	173,500
15	225	3.38	204,200	196,600	191,500	4.50	216,000	205,900	199,100
16	256	3.84	232,300	223,700	217,900	5.12	245,800	234,200	226,600
17	289	4.34	262,300	252,500	246,000	5.78	277,400	264,400	255,800
18	324	4.86	294,000	283,100	275,800	6.48	311,000	296,500	286,700
19	361	5.42	327,600	315,400	307,300	7.22	346,600	330,300	319,500
20	400	6.00	363,000	349,500	340,500	8.00	384,000	366,000	354,000
21	441	6.62	400,200	385,300	375,400	8.82	423,400	403,500	390,300
22	484	7.26	439,200	422,900	412,000	9.68	464,600	442,900	428,300
23	529	7.94	480,100	462,200	450,300	10.58	508,000	484,000	468,200
24	576	8.64	523,000	503,000	490,300	11.52	553,000	527,000	510,000
25	625	9.38	567,000	546,000	532,000	12.50	600,000	572,000	553,000
26	676	10.14	613,000	591,000	575,000	13.52	649,000	619,000	598,000
27	729	10.94	662,000	637,000	621,000	14.58	700,000	667,000	645,000
28	784	11.76	711,000	685,000	667,000	15.68	753,000	717,000	694,000
29	841	12.62	763,000	735,000	716,000	16.82	807,000	770,000	744,000
30	900	13.50	817,000	786,000	766,000	18.00	864,000	823,000	796,000
31	961	14.42	872,000	840,000	818,000	19.22	923,000	879,000	850,000
32	1,024	15.36	929,000	895,000	872,000	20.48	983,000	937,000	906,000
33	1,089	16.34	988,000	952,000	927,000	21.78	1,045,000	996,000	964,000
34	1,156	17.34	1,049,000	1,010,000	984,000	23.12	1,110,000	1,058,000	1,023,000
35	1,225	18.38	1,112,000	1,070,000	1,043,000	24.50	1,176,000	1,121,000	1,054,000
36	1,296	19.44	1,176,000	1,132,000	1,103,000	25.92	1,244,000	1,186,000	1,147,000
37	1,369	20.54	1,242,000	1,196,000	1,165,000	27.38	1,314,000	1,253,000	1,212,000
38	1,444	21.66	1,310,000	1,262,000	1,229,000	28.88	1,386,000	1,321,000	1,278,000
39	1,521	22.82	1,380,000	1,329,000	1,295,000	30.42	1,460,000	1,392,000	1,346,000
40	1,600	24.00	1,452,000	1,398,000	1,362,000	32.00	1,536,000	1,464,000	1,416,000
41	1,681	25.22	1,526,000	1,469,000	1,431,000	33.62	1,614,000	1,538,000	1,488,000
42	1,764	26.46	1,601,000	1,541,000	1,502,000	34.28	1,693,000	1,614,000	1,561,000
43	1,849	27.74	1,678,000	1,616,000	1,574,000	36.98	1,775,000	1,692,000	1,636,000
44	1,936	29.04	1,757,000	1,692,000	1,648,000	38.72	1,859,000	1,771,000	1,713,000
45	2,025	30.38	1,838,000	1,769,000	1,724,000	40.50	1,944,000	1,853,000	1,792,000
46	2,116	31.74	1,920,000	1,849,000	1,801,000	42.32	2,031,000	1,936,000	1,873,000
47	2,209	33.14	2,005,000	1,930,000	1,880,000	44.18	2,121,000	2,021,000	1,955,000
48	2,304	34.56	2,091,000	2,013,000	1,961,000	46.08	2,212,000	2,108,000	2,039,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 750$

Size of column in inches	Area of column in sq. inches	2½ % of vertical steel				3 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	2.50	101,200	95,600	91,900	3.00	106,500	99,700	95,200
11	121	3.03	122,500	115,700	111,200	3.63	128,900	120,700	115,300
12	144	3.60	145,800	137,700	132,300	4.32	153,300	143,600	137,200
13	169	4.23	171,100	161,600	155,300	5.07	180,000	168,600	161,000
14	196	4.90	198,400	187,400	180,100	5.88	208,700	195,500	186,700
15	225	5.63	227,800	215,200	206,700	6.75	239,600	224,400	214,300
16	256	6.40	259,200	244,800	235,200	7.68	272,600	255,400	243,800
17	289	7.23	292,600	276,400	265,500	8.67	307,800	288,300	275,300
18	324	8.10	328,000	309,800	297,700	9.72	345,100	323,200	308,600
19	361	9.03	365,500	345,200	331,700	10.83	384,500	360,100	343,900
20	400	10.00	405,000	382,500	367,500	12.00	426,000	399,000	381,000
21	441	11.03	446,500	421,700	405,200	13.23	469,700	439,900	420,100
22	484	12.10	490,000	462,800	444,700	14.52	515,000	482,800	461,000
23	529	13.23	536,000	506,000	486,000	15.87	563,000	528,000	504,000
24	576	14.40	583,000	551,000	529,000	17.28	613,000	575,000	549,000
25	625	15.63	633,000	598,000	574,000	18.75	666,000	623,000	595,000
26	676	16.90	684,000	646,000	621,000	20.28	720,000	674,000	644,000
27	729	18.23	738,000	697,000	670,000	21.87	776,000	727,000	694,000
28	784	19.60	794,000	750,000	720,000	23.52	835,000	782,000	747,000
29	841	21.03	852,000	804,000	773,000	25.23	896,000	839,000	801,000
30	900	22.50	911,000	861,000	827,000	27.00	958,000	898,000	857,000
31	961	24.03	973,000	919,000	883,000	28.83	1,023,000	959,000	915,000
32	1,024	25.60	1,037,000	979,000	941,000	30.72	1,091,000	1,021,000	975,000
33	1,089	27.23	1,103,000	1,041,000	1,001,000	32.67	1,160,000	1,086,000	1,037,000
34	1,156	28.90	1,170,000	1,105,000	1,062,000	34.68	1,231,000	1,153,000	1,101,000
35	1,225	30.63	1,240,000	1,171,000	1,125,000	36.75	1,305,000	1,222,000	1,167,000
36	1,296	32.40	1,312,000	1,239,000	1,191,000	38.88	1,380,000	1,293,000	1,234,000
37	1,369	34.23	1,386,000	1,309,000	1,258,000	41.07	1,458,000	1,366,000	1,304,000
38	1,444	36.10	1,462,000	1,381,000	1,327,000	43.32	1,538,000	1,440,000	1,375,000
39	1,521	38.03	1,540,000	1,454,000	1,397,000	45.63	1,620,000	1,517,000	1,449,000
40	1,600	40.00	1,620,000	1,530,000	1,470,000	48.00	1,704,000	1,596,000	1,524,000
41	1,681	42.03	1,702,000	1,607,000	1,544,000	50.43	1,790,000	1,677,000	1,601,000
42	1,764	44.10	1,786,000	1,687,000	1,621,000	52.92	1,879,000	1,760,000	1,680,000
43	1,849	46.23	1,872,000	1,768,000	1,699,000	55.47	1,969,000	1,844,000	1,761,000
44	1,936	48.40	1,960,000	1,851,000	1,779,000	57.72	2,062,000	1,931,000	1,844,000
45	2,025	50.63	2,050,000	1,936,000	1,860,000	60.75	2,157,000	2,020,000	1,929,000
46	2,116	52.90	2,142,000	2,023,000	1,944,000	62.48	2,254,000	2,111,000	2,015,000
47	2,209	55.23	2,237,000	2,112,000	2,030,000	66.27	2,353,000	2,203,000	2,104,000
48	2,304	57.60	2,333,000	2,203,000	2,117,000	69.08	2,454,000	2,298,000	2,195,000

SQUARE COLUMNS

(Total load in pounds on net area)

$f_c = 750$

Size of column in inches	Area of column in sq. inches	3½ % of vertical steel				4 % of vertical steel			
		Area of steel	Load			Area of steel	Load		
			n = 15	n = 12	n = 10		n = 15	n = 12	n = 10
10	100	3.50	111,700	103,900	98,600	4.00	117,000	108,000	102,000
11	121	4.24	135,200	125,700	119,300	4.84	141,600	130,700	123,400
12	144	5.04	160,900	149,600	142,000	5.76	168,500	155,500	146,900
13	169	5.92	188,900	175,500	166,700	6.76	197,700	182,500	172,400
14	196	6.86	219,000	203,600	193,300	7.84	229,300	211,700	199,900
15	225	7.88	251,400	233,700	221,900	9.00	263,200	243,000	229,500
16	256	8.96	286,100	265,900	252,500	10.24	299,500	276,500	261,100
17	239	10.12	323,000	300,200	285,000	11.58	338,100	312,100	294,800
18	324	11.34	362,100	336,600	319,500	12.96	379,100	349,900	330,500
19	361	12.64	403,400	375,000	356,000	14.40	422,400	389,900	368,200
20	400	14.00	447,000	415,500	394,500	16.00	468,000	432,000	408,000
21	441	15.44	492,800	458,100	434,900	17.64	516,000	476,300	449,800
22	484	16.96	541,000	503,000	477,300	19.36	566,000	523,000	493,700
23	529	18.52	591,000	549,000	522,000	21.06	619,000	571,000	540,000
24	576	20.16	644,000	598,000	568,000	23.04	674,000	622,000	588,000
25	625	21.88	698,000	649,000	616,000	25.00	731,000	675,000	637,000
26	676	23.66	755,000	702,000	667,000	27.04	791,000	730,000	690,000
27	729	25.52	815,000	757,000	719,000	29.16	853,000	787,000	744,000
28	784	27.44	876,000	814,000	773,000	31.36	917,000	847,000	800,000
29	841	29.44	940,000	874,000	829,000	33.64	984,000	908,000	858,000
30	900	31.50	1,006,000	935,000	888,000	36.00	1,053,000	972,000	918,000
31	961	33.64	1,074,000	998,000	948,000	38.44	1,124,000	1,038,000	980,000
32	1,024	35.84	1,144,000	1,064,000	1,010,000	40.06	1,198,000	1,106,000	1,044,000
33	1,089	38.12	1,217,000	1,131,000	1,074,000	43.56	1,274,000	1,176,000	1,111,000
34	1,156	40.46	1,292,000	1,201,000	1,140,000	46.24	1,353,000	1,248,000	1,179,000
35	1,225	42.88	1,369,000	1,272,000	1,208,000	49.00	1,433,000	1,323,000	1,249,000
36	1,296	45.36	1,448,000	1,346,000	1,278,000	51.84	1,516,000	1,400,000	1,322,000
37	1,369	47.92	1,530,000	1,422,000	1,350,000	54.76	1,602,000	1,479,000	1,396,000
38	1,444	50.54	1,614,000	1,500,000	1,424,000	57.76	1,689,000	1,560,000	1,473,000
39	1,521	53.24	1,700,000	1,580,000	1,500,000	60.84	1,780,000	1,643,000	1,551,000
40	1,600	56.00	1,788,000	1,662,000	1,578,000	64.00	1,872,000	1,728,000	1,632,000
41	1,681	58.84	1,879,000	1,746,000	1,658,000	67.24	1,967,000	1,815,000	1,715,000
42	1,764	61.74	1,971,000	1,832,000	1,740,000	70.56	2,064,000	1,905,000	1,799,000
43	1,849	64.72	2,066,000	1,921,000	1,824,000	73.56	2,163,000	1,997,000	1,886,000
44	1,936	67.76	2,163,000	2,011,000	1,909,000	77.44	2,265,000	2,091,000	1,975,000
45	2,025	70.88	2,263,000	2,103,000	1,997,000	81.00	2,369,000	2,187,000	2,065,000
46	2,116	74.06	2,365,000	2,198,000	2,087,000	84.64	2,476,000	2,285,000	2,158,000
47	2,209	77.32	2,469,000	2,295,000	2,179,000	88.36	2,585,000	2,386,000	2,253,000
48	2,304	80.64	2,575,000	2,393,000	2,272,000	92.16	2,696,000	2,488,000	2,350,000

ROUND COLUMNS

(Total load in pounds on net area)
(No reinforcement)

Diam. of column in inches	Area of column in sq. inches	f_c							
		450	500	550	600	650	700	750	800
10	79	35,300	39,300	43,200	47,100	51,100	55,000	58,900	62,800
11	95	42,800	47,500	52,300	57,000	61,800	66,500	71,300	76,000
12	113	50,900	56,500	62,200	67,900	73,500	79,200	84,800	90,500
13	133	59,700	66,400	73,000	79,600	86,300	92,900	99,500	106,200
14	154	69,300	77,000	84,700	92,400	100,100	107,800	115,500	123,200
15	177	79,500	88,400	97,200	106,000	114,900	123,700	132,500	141,400
16	201	90,500	100,500	110,600	120,600	130,700	140,700	150,800	160,800
17	227	102,100	113,500	124,800	136,200	147,500	158,900	170,200	181,600
18	254	114,500	127,200	140,000	152,700	165,400	178,100	190,900	203,600
19	284	127,600	141,800	155,900	170,100	184,300	198,500	212,600	226,800
20	314	141,400	157,100	172,800	188,500	204,200	219,900	235,600	251,300
21	346	155,900	173,200	190,500	207,800	225,100	242,500	259,800	277,100
22	380	171,100	190,100	209,100	228,100	247,100	266,100	285,100	304,100
23	415	187,000	207,700	228,500	249,300	270,100	290,800	311,600	332,400
24	452	203,600	226,200	248,800	271,400	294,100	316,700	339,300	361,900
25	491	220,900	245,400	270,000	294,500	319,100	343,600	368,200	392,700
26	531	238,900	265,500	292,000	318,600	345,100	371,700	398,200	424,700
27	573	257,600	286,300	314,900	343,500	372,200	400,800	429,400	458,000
28	616	277,100	307,900	338,700	369,400	400,200	431,000	461,800	492,600
29	661	297,200	330,300	363,300	396,300	429,300	462,400	495,400	528,000
30	707	318,100	353,400	388,800	424,100	459,500	494,800	530,000	565,000
31	755	339,600	377,400	415,100	452,900	490,600	528,000	566,000	604,000
32	804	361,900	402,100	442,300	482,600	523,000	563,000	603,000	643,000
33	855	384,900	427,600	470,400	513,000	556,000	599,000	641,000	684,000
34	908	408,600	454,000	499,400	545,000	590,000	636,000	681,000	726,000
35	962	432,900	481,100	529,000	577,000	625,000	673,000	722,000	770,000
36	1,018	458,100	509,000	560,000	611,000	662,000	713,000	763,000	814,000
37	1,075	483,800	538,000	591,000	645,000	699,000	753,000	806,000	860,000
38	1,134	510,000	567,000	624,000	680,000	737,000	794,000	851,000	907,000
39	1,195	538,000	597,000	657,000	717,000	776,000	836,000	896,000	956,000
40	1,257	565,000	628,000	691,000	754,000	817,000	880,000	942,000	1,005,000
41	1,320	594,000	660,000	726,000	792,000	858,000	924,000	990,000	1,056,000
42	1,385	623,000	693,000	762,000	831,000	901,000	970,000	1,039,000	1,108,000
43	1,452	653,000	726,000	799,000	871,000	944,000	1,017,000	1,089,000	1,162,000
44	1,520	684,000	760,000	836,000	912,000	988,000	1,064,000	1,140,000	1,216,000
45	1,590	716,000	795,000	875,000	954,000	1,034,000	1,113,000	1,193,000	1,272,000
46	1,662	748,000	831,000	914,000	997,000	1,080,000	1,163,000	1,246,000	1,330,000
47	1,735	781,000	867,000	954,000	1,041,000	1,128,000	1,214,000	1,301,000	1,388,000
48	1,810	814,000	905,000	995,000	1,086,000	1,176,000	1,267,000	1,357,000	1,448,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 400$

in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 15	n = 12	n = 15	n = 12	n = 15	n = 12	n = 15	n = 12
0	79	37,100	35,900	42,700	40,500	48,400	45,000	54,000	49,500
1	95	44,900	43,500	51,700	49,000	58,500	54,400	65,400	59,900
2	113	53,400	51,800	61,500	58,300	69,700	64,800	77,800	71,300
3	133	62,600	60,700	72,200	68,400	81,800	76,000	91,300	83,700
4	154	72,700	70,400	83,700	79,300	94,800	88,200	105,900	97,000
5	177	83,400	80,900	96,100	91,000	108,900	101,200	121,600	111,400
6	201	94,900	92,000	109,400	103,600	123,900	115,200	138,300	126,700
7	227	107,100	103,900	123,500	116,900	139,800	130,000	156,200	143,100
8	254	120,100	116,400	138,400	131,100	156,800	145,800	175,100	160,400
9	284	133,800	129,700	154,200	146,100	174,600	162,400	195,100	178,700
0	314	148,300	143,800	170,900	161,900	193,500	180,000	216,100	198,000
1	346	163,400	158,500	188,400	178,400	213,300	198,400	238,300	218,300
2	380	179,400	173,900	206,800	195,800	234,200	217,700	261,500	239,600
3	415	196,100	190,100	226,000	214,100	255,900	238,000	285,900	261,900
4	452	213,500	207,000	246,100	233,100	278,700	259,100	311,200	285,200
5	491	231,700	224,600	267,000	252,900	302,400	281,200	337,700	309,400
6	531	250,600	243,000	288,800	273,500	327,100	304,100	365,300	334,700
7	573	270,200	262,000	311,500	295,000	352,700	328,000	393,900	360,900
8	616	290,600	281,800	335,000	317,200	379,300	352,700	423,600	388,200
9	661	311,800	302,300	359,300	340,300	406,900	378,300	454,400	416,400
0	707	333,600	323,500	384,500	364,200	435,400	404,900	486,300	445,600
1	755	356,300	345,400	410,600	388,900	464,900	432,300	519,000	475,800
2	804	379,600	368,000	437,500	414,300	495,400	460,700	553,000	507,000
3	855	403,700	391,400	465,300	440,700	527,000	489,900	588,000	539,000
4	908	428,500	415,500	493,900	467,800	559,000	520,000	625,000	572,000
5	962	454,100	440,300	523,000	495,700	593,000	551,000	662,000	607,000
6	1,018	480,400	465,800	554,000	524,000	627,000	583,000	700,000	642,000
7	1,075	507,000	492,000	585,000	554,000	662,000	616,000	740,000	678,000
8	1,134	535,000	519,000	617,000	584,000	699,000	650,000	780,000	715,000
9	1,195	564,000	547,000	650,000	615,000	736,000	684,000	822,000	753,000
0	1,257	593,000	575,000	684,000	647,000	774,000	720,000	865,000	792,000
1	1,320	623,000	604,000	718,000	680,000	813,000	756,000	908,000	832,000
2	1,385	654,000	634,000	754,000	714,000	853,000	794,000	953,000	873,000
3	1,452	685,000	665,000	790,000	748,000	895,000	832,000	999,000	915,000
4	1,520	718,000	696,000	827,000	783,000	937,000	871,000	1,046,000	959,000
5	1,590	751,000	728,000	865,000	819,000	980,000	911,000	1,094,000	1,003,000
6	1,662	784,000	760,000	904,000	856,000	1,024,000	952,000	1,143,000	1,048,000
7	1,735	819,000	794,000	944,000	894,000	1,069,000	994,000	1,194,000	1,094,000
8	1,810	854,000	828,000	984,000	932,000	1,115,000	1,037,000	1,245,000	1,141,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 450$

Diam. of column in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 15	n = 12	n = 15	n = 12	n = 15	n = 12	n = 15	n = 12
10	79	41,700	40,400	48,100	45,500	54,400	50,600	60,800	55,700
11	95	50,500	48,900	58,200	55,100	65,900	61,200	73,600	67,400
12	113	60,100	58,200	69,200	65,600	78,400	72,900	87,500	80,200
13	133	70,500	68,300	81,200	76,900	92,000	85,500	102,700	94,100
14	154	81,700	79,200	94,200	89,200	106,700	99,200	119,100	109,200
15	177	93,800	91,000	108,100	102,400	122,500	113,900	136,800	125,300
16	201	106,800	103,500	123,000	116,500	139,300	129,600	155,600	142,600
17	227	120,500	116,800	138,900	131,600	157,300	146,300	175,700	161,000
18	254	135,100	131,000	155,700	147,500	176,300	164,000	197,000	180,500
19	284	150,600	146,000	173,500	164,300	196,500	182,700	219,500	201,100
20	314	166,800	161,700	192,300	182,100	217,700	202,400	243,200	222,800
21	346	183,900	178,300	212,000	200,800	240,000	223,200	268,100	245,600
22	380	201,800	195,700	232,600	220,300	263,400	245,000	294,200	269,600
23	415	220,600	213,900	254,300	240,800	287,900	267,700	321,600	294,700
24	452	240,200	232,900	276,900	262,200	313,500	291,500	350,100	320,800
25	491	260,700	252,700	300,400	284,500	340,200	316,300	379,900	348,100
26	531	281,900	273,300	324,900	307,700	367,900	342,100	410,900	376,500
27	573	304,000	294,800	350,400	331,900	396,800	369,000	443,200	406,100
28	616	327,000	317,000	376,800	356,900	426,700	396,800	476,600	436,700
29	661	350,700	340,000	404,200	382,800	457,700	425,600	511,000	468,400
30	707	375,300	363,900	432,600	409,700	489,900	455,500	547,000	501,000
31	755	400,800	388,600	461,900	437,500	523,000	486,400	584,000	535,000
32	804	427,100	414,000	492,200	466,100	557,000	518,000	622,000	570,000
33	855	454,200	440,300	523,000	495,700	593,000	551,000	662,000	607,000
34	908	482,100	467,400	556,000	526,000	629,000	585,000	703,000	644,000
35	962	511,000	495,300	589,000	558,000	667,000	620,000	745,000	682,000
36	1,018	541,000	524,000	623,000	590,000	705,000	656,000	788,000	722,000
37	1,075	571,000	554,000	658,000	623,000	745,000	693,000	832,000	763,000
38	1,134	602,000	584,000	694,000	657,000	786,000	731,000	878,000	804,000
39	1,195	634,000	615,000	731,000	692,000	828,000	770,000	925,000	847,000
40	1,257	667,000	647,000	769,000	728,000	871,000	810,000	973,000	891,000
41	1,320	701,000	680,000	808,000	765,000	915,000	851,000	1,022,000	936,000
42	1,385	736,000	713,000	848,000	803,000	960,000	893,000	1,072,000	983,000
43	1,452	771,000	748,000	889,000	842,000	1,006,000	936,000	1,124,000	1,030,000
44	1,520	807,000	783,000	931,000	881,000	1,054,000	980,000	1,177,000	1,078,000
45	1,590	845,000	819,000	973,000	922,000	1,102,000	1,025,000	1,231,000	1,128,000
46	1,662	882,000	856,000	1,017,000	963,000	1,152,000	1,071,000	1,286,000	1,179,000
47	1,735	921,000	893,000	1,062,000	1,006,000	1,202,000	1,118,000	1,343,000	1,230,000
48	1,810	961,000	932,000	1,107,000	1,049,000	1,254,000	1,166,000	1,401,000	1,283,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 500$

Diam. of column in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 15	n = 12	n = 15	n = 12	n = 15	n = 12	n = 15	n = 12
10	79	46,300	44,900	53,400	50,600	60,500	56,200	67,500	61,900
11	95	56,100	54,400	64,600	61,200	73,200	68,000	81,700	74,900
12	113	66,700	64,700	76,900	72,800	87,100	81,000	97,300	89,100
13	133	78,300	75,900	90,300	85,500	102,200	95,000	114,100	104,600
14	154	90,800	88,100	104,700	99,100	118,500	110,200	132,400	121,300
15	177	104,300	101,100	120,200	113,800	136,100	126,500	152,000	139,200
16	201	118,600	115,000	136,700	129,500	154,800	144,000	172,900	158,400
17	227	133,900	129,800	154,300	146,200	174,800	162,500	195,200	178,900
18	254	150,100	145,600	173,000	163,900	195,900	182,200	218,800	200,500
19	284	167,300	162,200	192,800	182,600	218,300	203,000	243,800	223,400
20	314	185,400	179,700	213,600	202,300	241,900	224,900	270,200	247,600
21	346	204,400	198,100	235,500	223,100	266,700	248,000	297,900	272,900
22	380	224,300	217,400	258,500	244,800	292,700	272,200	326,900	299,500
23	415	245,100	237,700	282,500	267,600	319,900	297,500	357,300	327,400
24	452	266,900	258,800	307,600	291,300	348,300	323,900	389,100	356,500
25	491	289,600	280,800	333,800	316,100	378,000	351,500	422,100	386,800
26	531	313,200	303,700	361,000	341,900	408,800	380,100	456,600	418,400
27	573	337,800	327,500	389,300	368,700	440,900	410,000	492,400	451,200
28	616	363,300	352,200	418,700	396,500	474,100	440,900	530,000	485,200
29	661	389,700	377,800	449,200	425,400	508,600	472,900	568,000	520,000
30	707	417,000	404,300	480,700	455,200	544,000	506,000	608,000	557,000
31	755	445,300	431,700	513,000	486,100	581,000	540,000	649,000	595,000
32	804	474,500	460,000	547,000	518,000	619,000	576,000	692,000	634,000
33	855	505,000	489,200	582,000	551,000	659,000	612,000	736,000	674,000
34	908	536,000	519,000	617,000	585,000	699,000	650,000	781,000	715,000
35	962	568,000	550,000	654,000	620,000	741,000	689,000	827,000	758,000
36	1,018	601,000	582,000	692,000	656,000	784,000	729,000	875,000	802,000
37	1,075	634,000	615,000	731,000	692,000	828,000	770,000	925,000	847,000
38	1,134	669,000	649,000	771,000	730,000	873,000	812,000	975,000	894,000
39	1,195	705,000	683,000	812,000	769,000	920,000	855,000	1,027,000	941,000
40	1,257	741,000	719,000	854,000	809,000	968,000	900,000	1,081,000	990,000
41	1,320	779,000	755,000	898,000	850,000	1,017,000	945,000	1,135,000	1,040,000
42	1,385	817,000	792,000	942,000	892,000	1,067,000	992,000	1,191,000	1,092,000
43	1,452	857,000	831,000	987,000	935,000	1,118,000	1,040,000	1,249,000	1,144,000
44	1,520	897,000	870,000	1,034,000	979,000	1,171,000	1,089,000	1,308,000	1,198,000
45	1,590	938,000	910,000	1,081,000	1,024,000	1,225,000	1,139,000	1,368,000	1,253,000
46	1,662	981,000	951,000	1,130,000	1,070,000	1,280,000	1,190,000	1,429,000	1,310,000
47	1,735	1,024,000	992,000	1,180,000	1,117,000	1,336,000	1,242,000	1,492,000	1,367,000
48	1,810	1,068,000	1,035,000	1,231,000	1,165,000	1,393,000	1,296,000	1,556,000	1,426,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 550$

Diam. of column in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 15	n = 12	n = 15	n = 12	n = 15	n = 12	n = 15	n = 12
10	79	51,000	49,400	58,700	55,600	66,500	61,900	74,300	68,100
11	95	61,700	59,800	71,100	67,300	80,500	74,800	89,900	82,400
12	113	73,400	71,200	84,600	80,100	95,800	89,100	107,000	98,000
13	133	86,100	83,500	99,300	94,000	112,400	104,500	125,600	115,100
14	154	99,900	96,900	115,100	109,100	130,400	121,200	145,600	133,400
15	177	114,700	111,200	132,200	125,200	149,700	139,200	167,200	153,200
16	201	130,500	126,500	150,400	142,400	170,300	158,400	190,200	174,300
17	227	147,300	142,800	169,800	160,800	192,300	178,800	214,700	196,700
18	254	165,200	160,100	190,300	180,300	215,500	200,400	240,700	220,600
19	284	184,000	178,400	212,100	200,900	240,100	223,300	268,200	245,800
20	314	203,900	197,700	235,000	222,600	266,100	247,400	297,200	272,300
21	346	224,800	217,900	259,100	245,400	293,400	272,800	327,700	300,200
22	380	246,700	239,200	284,300	269,300	322,000	299,400	359,600	329,500
23	415	269,600	261,400	310,800	294,300	351,900	327,200	393,000	360,100
24	452	293,600	284,600	338,400	320,500	383,200	356,300	428,000	392,100
25	491	318,600	308,900	367,200	347,700	415,800	386,600	464,400	425,500
26	531	344,600	334,100	397,100	376,100	449,700	418,200	502,000	460,200
27	573	371,600	360,300	428,300	405,600	485,000	450,900	542,000	496,300
28	616	399,600	387,400	460,600	436,200	522,000	485,000	582,000	534,000
29	661	428,700	415,600	494,100	467,900	559,000	520,000	625,000	573,000
30	707	458,800	444,800	529,000	501,000	599,000	557,000	669,000	613,000
31	755	489,800	474,900	565,000	535,000	639,000	594,000	714,000	654,000
32	804	522,000	506,000	602,000	570,000	681,000	633,000	761,000	697,000
33	855	555,000	538,000	640,000	606,000	724,000	674,000	809,000	741,000
34	908	589,000	571,000	679,000	643,000	769,000	715,000	859,000	787,000
35	962	624,000	605,000	720,000	682,000	815,000	758,000	910,000	834,000
36	1,018	661,000	640,000	761,000	721,000	862,000	802,000	963,000	882,000
37	1,075	698,000	677,000	804,000	762,000	911,000	847,000	1,017,000	932,000
38	1,134	736,000	714,000	848,000	803,000	961,000	893,000	1,073,000	983,000
39	1,195	775,000	752,000	894,000	846,000	1,012,000	941,000	1,130,000	1,035,000
40	1,257	816,000	791,000	940,000	890,000	1,064,000	990,000	1,189,000	1,089,000
41	1,320	857,000	831,000	988,000	935,000	1,118,000	1,040,000	1,249,000	1,144,000
42	1,385	899,000	872,000	1,036,000	981,000	1,173,000	1,091,000	1,311,000	1,201,000
43	1,452	942,000	914,000	1,086,000	1,029,000	1,230,000	1,144,000	1,374,000	1,259,000
44	1,520	987,000	951,000	1,137,000	1,077,000	1,288,000	1,198,000	1,438,000	1,318,000
45	1,590	1,032,000	1,001,000	1,190,000	1,127,000	1,347,000	1,253,000	1,505,000	1,379,000
46	1,662	1,079,000	1,046,000	1,243,000	1,177,000	1,408,000	1,309,000	1,572,000	1,441,000
47	1,735	1,126,000	1,092,000	1,298,000	1,229,000	1,469,000	1,366,000	1,641,000	1,504,000
48	1,810	1,174,000	1,139,000	1,354,000	1,282,000	1,533,000	1,425,000	1,712,000	1,569,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 600$

Diam. of column in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 15	n = 12	n = 15	n = 12	n = 15	n = 12	n = 15	n = 12
10	79	55,600	53,900	64,100	60,700	72,600	67,500	81,100	74,300
11	95	67,300	65,200	77,500	73,400	87,800	81,700	98,100	89,900
12	113	80,100	77,600	92,300	87,400	104,500	97,200	116,700	106,900
13	133	94,000	91,100	108,300	102,600	122,600	114,000	137,000	125,500
14	154	109,000	105,700	125,600	119,000	142,200	132,300	158,900	145,600
15	177	125,100	121,300	144,200	136,600	163,300	151,800	182,400	167,100
16	201	142,400	138,000	164,100	155,400	185,800	172,800	207,500	190,100
17	227	160,700	155,800	185,200	175,400	209,700	195,000	234,200	214,600
18	254	180,200	174,700	207,600	196,700	235,100	218,600	262,600	240,600
19	284	200,700	194,600	231,400	219,100	262,000	243,600	292,600	268,100
20	314	222,400	215,600	256,400	242,800	290,300	269,900	324,200	297,100
21	346	245,200	237,700	282,600	267,700	320,000	297,600	357,400	327,500
22	380	269,100	260,900	310,200	293,800	351,200	326,600	392,300	359,500
23	415	294,200	285,200	339,000	321,100	383,900	357,000	428,800	392,900
24	452	320,300	310,500	369,200	349,600	418,000	388,700	466,900	427,800
25	491	347,500	336,900	400,500	379,300	453,600	421,800	507,000	464,200
26	531	375,900	364,400	433,200	410,300	490,600	456,200	548,000	502,000
27	573	405,400	393,000	467,200	442,500	529,000	491,900	591,000	541,000
28	616	436,000	422,700	502,000	475,900	569,000	529,000	635,000	582,000
29	661	467,600	453,400	539,000	510,000	610,000	568,000	682,000	625,000
30	707	500,000	485,200	577,000	546,000	653,000	607,000	729,000	668,000
31	755	534,000	518,000	616,000	583,000	697,000	648,000	779,000	714,000
32	804	569,000	552,000	656,000	622,000	743,000	691,000	830,000	760,000
33	855	606,000	587,000	698,000	661,000	790,000	735,000	883,000	809,000
34	908	643,000	623,000	741,000	702,000	839,000	780,000	937,000	859,000
35	962	681,000	660,000	785,000	744,000	889,000	827,000	993,000	910,000
36	1,018	721,000	699,000	831,000	787,000	941,000	875,000	1,050,000	963,000
37	1,075	761,000	738,000	877,000	831,000	993,000	924,000	1,110,000	1,017,000
38	1,134	803,000	778,000	925,000	876,000	1,048,000	974,000	1,170,000	1,072,000
39	1,195	846,000	820,000	975,000	923,000	1,104,000	1,026,000	1,233,000	1,130,000
40	1,257	890,000	863,000	1,025,000	971,000	1,161,000	1,080,000	1,297,000	1,188,000
41	1,320	935,000	906,000	1,077,000	1,020,000	1,220,000	1,134,000	1,363,000	1,248,000
42	1,385	981,000	951,000	1,130,000	1,071,000	1,280,000	1,190,000	1,430,000	1,310,000
43	1,452	1,028,000	997,000	1,185,000	1,122,000	1,342,000	1,248,000	1,499,000	1,373,000
44	1,520	1,077,000	1,044,000	1,241,000	1,175,000	1,405,000	1,306,000	1,569,000	1,438,000
45	1,590	1,126,000	1,092,000	1,298,000	1,229,000	1,470,000	1,366,000	1,641,000	1,504,000
46	1,662	1,177,000	1,141,000	1,356,000	1,284,000	1,536,000	1,428,000	1,715,000	1,571,000
47	1,735	1,228,000	1,191,000	1,416,000	1,341,000	1,603,000	1,491,000	1,790,000	1,641,000
48	1,810	1,281,000	1,242,000	1,477,000	1,398,000	1,672,000	1,555,000	1,868,000	1,711,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 650$

Diam. of column in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 12	n = 10	n = 12	n = 10	n = 12	n = 10	n = 12	n = 10
10	79	58,400	57,200	65,800	63,300	73,100	69,400	80,500	75,600
11	95	70,700	69,200	79,600	76,600	88,500	84,000	97,400	91,400
12	113	84,100	82,300	94,700	91,200	105,300	100,000	115,900	108,800
13	133	98,700	96,600	111,100	107,000	123,500	117,300	136,000	127,700
14	154	114,500	112,100	128,900	124,100	143,300	136,100	157,700	148,100
15	177	131,400	128,600	147,900	142,400	164,500	156,200	181,000	170,000
16	201	149,500	146,400	168,300	162,100	187,100	177,700	206,000	193,400
17	227	168,800	165,200	190,000	182,900	211,300	200,700	232,500	218,400
18	254	189,200	185,300	213,000	205,100	236,900	225,000	260,700	244,800
19	284	210,800	206,400	237,400	228,500	263,900	250,600	290,400	272,800
20	314	233,600	228,700	263,000	253,200	292,400	277,700	321,800	302,200
21	346	257,600	252,100	290,000	279,200	322,400	306,200	354,800	333,200
22	380	282,700	276,700	318,200	306,400	353,800	336,000	389,400	365,700
23	415	309,000	302,500	347,800	334,900	386,700	367,300	425,600	399,700
24	452	336,400	329,300	378,700	364,600	421,100	399,900	463,400	435,200
25	491	365,000	357,400	411,000	395,600	456,900	433,900	503,000	472,200
26	531	394,800	386,500	444,500	427,900	494,200	469,300	544,000	511,000
27	573	425,800	416,800	479,300	461,500	533,000	506,000	587,000	551,000
28	616	457,900	448,300	516,000	496,300	573,000	544,000	631,000	592,000
29	661	491,200	480,900	553,000	532,000	615,000	584,000	677,000	635,000
30	707	526,000	515,000	592,000	570,000	658,000	625,000	724,000	680,000
31	755	561,000	549,000	632,000	608,000	703,000	667,000	773,000	726,000
32	804	598,000	585,000	673,000	648,000	749,000	711,000	824,000	774,000
33	855	636,000	623,000	716,000	689,000	796,000	756,000	876,000	823,000
34	908	675,000	661,000	760,000	732,000	845,000	803,000	930,000	873,000
35	962	715,000	700,000	805,000	775,000	896,000	851,000	986,000	926,000
36	1,018	757,000	741,000	852,000	820,000	947,000	900,000	1,043,000	979,000
37	1,075	800,000	783,000	900,000	867,000	1,001,000	950,000	1,101,000	1,034,000
38	1,134	843,000	826,000	949,000	914,000	1,056,000	1,003,000	1,162,000	1,091,000
39	1,195	888,000	870,000	1,000,000	963,000	1,112,000	1,056,000	1,224,000	1,149,000
40	1,257	934,000	915,000	1,052,000	1,013,000	1,170,000	1,111,000	1,287,000	1,209,000
41	1,320	982,000	961,000	1,105,000	1,064,000	1,229,000	1,167,000	1,352,000	1,270,000
42	1,385	1,030,000	1,009,000	1,160,000	1,117,000	1,290,000	1,225,000	1,419,000	1,333,000
43	1,452	1,080,000	1,057,000	1,216,000	1,170,000	1,352,000	1,284,000	1,488,000	1,397,000
44	1,520	1,131,000	1,107,000	1,273,000	1,226,000	1,415,000	1,344,000	1,558,000	1,463,000
45	1,590	1,183,000	1,158,000	1,331,000	1,282,000	1,480,000	1,406,000	1,629,000	1,530,000
46	1,662	1,236,000	1,210,000	1,391,000	1,339,000	1,547,000	1,469,000	1,702,000	1,599,000
47	1,735	1,290,000	1,263,000	1,452,000	1,398,000	1,615,000	1,534,000	1,777,000	1,669,000
48	1,810	1,346,000	1,317,000	1,515,000	1,459,000	1,684,000	1,600,000	1,854,000	1,741,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 700$

Diam. of column in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 12	n = 10	n = 12	n = 10	n = 12	n = 10	n = 12	n = 10
10	79	62,900	61,600	70,800	68,200	78,700	74,800	86,600	81,400
11	95	76,100	74,500	85,700	82,500	95,300	90,500	104,800	98,500
12	113	90,600	88,700	102,000	98,200	113,400	107,700	124,800	117,200
13	133	106,300	104,100	119,700	115,200	133,000	126,400	146,400	137,500
14	154	123,300	120,700	138,800	133,600	154,300	146,600	169,800	159,500
15	177	141,500	138,500	159,300	153,400	177,100	168,200	194,900	183,100
16	201	161,000	157,600	181,300	174,500	201,500	191,400	221,800	208,300
17	227	181,800	178,000	204,600	197,000	227,500	216,100	250,400	235,200
18	254	203,800	199,500	229,400	220,900	255,100	242,300	280,700	263,600
19	284	227,100	222,300	255,600	246,100	284,200	269,900	312,800	293,700
20	314	251,600	246,300	283,200	272,700	314,900	299,100	346,600	325,500
21	346	277,400	271,500	312,300	300,600	347,200	329,700	382,100	358,800
22	380	304,400	298,000	342,700	330,000	381,000	361,900	419,400	393,800
23	415	332,700	325,700	374,600	360,600	416,500	395,500	458,400	430,400
24	452	362,300	354,700	407,900	392,700	453,500	430,700	499,100	468,700
25	491	393,100	384,800	442,600	426,100	492,000	467,300	542,000	509,000
26	531	425,200	416,200	478,700	460,800	532,000	505,000	586,000	550,000
27	573	458,500	448,900	516,000	497,000	574,000	545,000	632,000	593,000
28	616	493,100	482,700	555,000	534,000	617,000	586,000	679,000	638,000
29	661	529,000	518,000	596,000	573,000	662,000	629,000	729,000	684,000
30	707	566,000	554,000	637,000	614,000	709,000	673,000	780,000	732,000
31	755	604,000	592,000	681,000	655,000	757,000	719,000	833,000	782,000
32	804	644,000	631,000	725,000	698,000	806,000	766,000	887,000	833,000
33	855	685,000	671,000	771,000	742,000	857,000	814,000	944,000	886,000
34	908	727,000	712,000	819,000	788,000	910,000	864,000	1,002,000	941,000
35	962	770,000	754,000	867,000	835,000	964,000	916,000	1,061,000	997,000
36	1,018	815,000	798,000	918,000	884,000	1,020,000	969,000	1,123,000	1,055,000
37	1,075	861,000	843,000	969,000	933,000	1,078,000	1,024,000	1,186,000	1,114,000
38	1,134	908,000	889,000	1,023,000	984,000	1,137,000	1,080,000	1,251,000	1,175,000
39	1,195	957,000	937,000	1,077,000	1,037,000	1,197,000	1,137,000	1,318,000	1,238,000
40	1,257	1,006,000	985,000	1,133,000	1,091,000	1,260,000	1,196,000	1,386,000	1,302,000
41	1,320	1,057,000	1,035,000	1,190,000	1,146,000	1,323,000	1,257,000	1,457,000	1,368,000
42	1,385	1,109,000	1,086,000	1,249,000	1,203,000	1,389,000	1,319,000	1,528,000	1,435,000
43	1,452	1,163,000	1,139,000	1,309,000	1,261,000	1,456,000	1,382,000	1,602,000	1,504,000
44	1,520	1,218,000	1,192,000	1,371,000	1,320,000	1,524,000	1,448,000	1,677,000	1,575,000
45	1,590	1,274,000	1,247,000	1,434,000	1,380,000	1,594,000	1,514,000	1,755,000	1,648,000
46	1,662	1,331,000	1,303,000	1,498,000	1,443,000	1,666,000	1,582,000	1,833,000	1,722,000
47	1,735	1,389,000	1,360,000	1,564,000	1,506,000	1,739,000	1,652,000	1,914,000	1,797,000
48	1,810	1,449,000	1,419,000	1,632,000	1,571,000	1,814,000	1,723,000	1,996,000	1,875,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 750$

Diam. of column in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 12	n = 10	n = 12	n = 10	n = 12	n = 10	n = 12	n = 10
10	79	67,400	66,000	75,900	73,000	84,400	80,100	92,800	87,200
11	95	81,500	79,800	91,800	88,400	102,100	96,900	112,300	105,500
12	113	97,000	95,000	109,300	105,200	121,500	115,400	133,700	125,500
13	133	113,900	111,500	128,200	123,400	142,600	135,400	156,900	147,300
14	154	132,100	129,300	148,700	143,200	165,300	157,000	182,000	170,900
15	177	151,600	148,400	170,700	164,300	189,800	180,200	208,900	196,100
16	201	172,500	168,900	194,200	187,000	215,900	205,100	237,700	223,200
17	227	194,700	190,700	219,300	211,100	243,800	231,500	268,300	251,900
18	254	218,300	213,800	245,800	236,700	273,300	259,600	300,800	282,500
19	284	243,300	238,200	273,900	263,700	304,500	289,200	335,100	314,700
20	314	269,500	263,900	303,500	292,200	337,400	320,400	371,300	348,700
21	346	297,200	290,900	334,600	322,100	372,000	353,300	409,400	384,500
22	380	326,100	319,300	367,200	353,500	408,300	387,700	449,300	421,900
23	415	356,500	349,000	401,400	386,400	446,200	423,800	491,100	461,200
24	452	388,100	380,000	437,000	420,700	485,900	461,400	535,000	502,000
25	491	421,200	412,300	474,200	456,500	527,000	501,000	580,000	545,000
26	531	455,500	446,000	513,000	493,800	570,000	542,000	628,000	589,000
27	573	491,300	481,000	553,100	532,000	615,000	584,000	677,000	636,000
28	616	528,000	517,000	595,000	573,000	661,000	628,000	728,000	683,000
29	661	567,000	555,000	638,000	614,000	709,000	674,000	781,000	733,000
30	707	606,000	594,000	683,000	657,000	759,000	721,000	836,000	785,000
31	755	648,000	634,000	729,000	702,000	811,000	770,000	892,000	838,000
32	804	690,000	676,000	777,000	748,000	864,000	820,000	951,000	893,000
33	855	734,000	718,000	826,000	795,000	919,000	872,000	1,011,000	949,000
34	908	779,000	763,000	877,000	844,000	975,000	926,000	1,073,000	1,008,000
35	962	825,000	808,000	929,000	895,000	1,033,000	981,000	1,137,000	1,068,000
36	1,018	873,000	855,000	983,000	947,000	1,093,000	1,038,000	1,203,000	1,130,000
37	1,075	923,000	903,000	1,039,000	1,000,000	1,155,000	1,097,000	1,271,000	1,193,000
38	1,134	973,000	953,000	1,096,000	1,055,000	1,218,000	1,157,000	1,341,000	1,259,000
39	1,195	1,025,000	1,003,000	1,154,000	1,111,000	1,283,000	1,218,000	1,412,000	1,326,000
40	1,257	1,078,000	1,056,000	1,214,000	1,169,000	1,350,000	1,282,000	1,485,000	1,395,000
41	1,320	1,133,000	1,109,000	1,275,000	1,228,000	1,418,000	1,347,000	1,561,000	1,466,000
42	1,385	1,189,000	1,164,000	1,338,000	1,288,000	1,488,000	1,413,000	1,638,000	1,538,000
43	1,452	1,246,000	1,220,000	1,403,000	1,351,000	1,560,000	1,481,000	1,716,000	1,612,000
44	1,520	1,305,000	1,277,000	1,469,000	1,414,000	1,633,000	1,551,000	1,797,000	1,688,000
45	1,590	1,365,000	1,336,000	1,536,000	1,479,000	1,708,000	1,622,000	1,880,000	1,765,000
46	1,662	1,426,000	1,396,000	1,605,000	1,546,000	1,785,000	1,695,000	1,964,000	1,845,000
47	1,735	1,489,000	1,457,000	1,676,000	1,613,000	1,863,000	1,770,000	2,051,000	1,926,000
48	1,810	1,552,000	1,520,000	1,748,000	1,683,000	1,944,000	1,846,000	2,139,000	2,009,000

HOOPED COLUMNS

(Total load in pounds on net area)

$f_c = 800$

Diam. of column in inches	Area of column in sq. inches	Load, ½ % of hooping		Load, 1 % of hooping		Load, 1½ % of hooping		Load, 2 % of hooping	
		n = 12	n = 10	n = 12	n = 10	n = 12	n = 10	n = 12	n = 10
10	79	71,900	70,400	80,900	77,900	90,000	85,500	99,000	93,000
11	95	87,000	85,100	97,900	94,300	108,900	103,400	119,800	112,500
12	113	103,500	101,300	116,500	112,200	129,600	123,100	142,600	133,900
13	133	121,500	118,900	136,800	131,700	152,100	144,400	167,300	157,200
14	154	140,900	137,900	158,600	152,700	176,400	167,500	194,100	182,300
15	177	161,700	158,300	182,100	175,300	202,400	192,300	222,800	209,200
16	201	184,000	180,100	207,200	199,500	230,300	218,800	253,500	238,100
17	227	207,700	203,400	233,900	225,200	260,000	247,000	286,200	268,700
18	254	232,900	228,000	262,200	252,400	291,500	276,900	320,800	301,300
19	284	259,500	254,000	292,100	281,300	324,800	308,500	357,500	335,700
20	314	287,500	281,500	323,700	311,600	359,900	341,800	396,100	372,000
21	346	317,000	310,300	356,900	343,600	396,800	376,800	436,700	410,100
22	380	347,900	340,600	391,700	377,100	435,500	413,600	479,300	450,100
23	415	380,200	372,300	428,100	412,200	476,000	452,000	524,000	491,900
24	452	414,000	405,300	466,100	448,800	518,000	492,200	570,000	536,000
25	491	449,200	439,800	506,000	486,900	562,000	534,000	619,000	581,000
26	531	485,900	475,700	547,000	527,000	608,000	578,000	669,000	629,000
27	573	524,000	513,000	590,000	568,000	656,000	623,000	722,000	678,000
28	616	564,000	552,000	634,000	611,000	705,000	670,000	776,000	729,000
29	661	605,000	592,000	681,000	655,000	757,000	719,000	833,000	782,000
30	707	647,000	633,000	728,000	701,000	810,000	769,000	891,000	837,000
31	755	691,000	676,000	778,000	749,000	865,000	821,000	952,000	894,000
32	804	736,000	721,000	829,000	798,000	921,000	875,000	1,014,000	952,000
33	855	783,000	766,000	881,000	848,000	980,000	931,000	1,078,000	1,013,000
34	908	831,000	813,000	936,000	901,000	1,040,000	988,000	1,145,000	1,075,000
35	962	881,000	862,000	991,000	954,000	1,102,000	1,047,000	1,213,000	1,139,000
36	1,018	932,000	912,000	1,049,000	1,010,000	1,166,000	1,107,000	1,283,000	1,205,000
37	1,075	984,000	963,000	1,108,000	1,067,000	1,232,000	1,170,000	1,356,000	1,273,000
38	1,134	1,038,000	1,016,000	1,169,000	1,125,000	1,299,000	1,234,000	1,430,000	1,343,000
39	1,195	1,093,000	1,070,000	1,231,000	1,185,000	1,369,000	1,300,000	1,506,000	1,414,000
40	1,257	1,150,000	1,126,000	1,295,000	1,247,000	1,440,000	1,367,000	1,584,000	1,488,000
41	1,320	1,208,000	1,183,000	1,360,000	1,310,000	1,513,000	1,436,000	1,665,000	1,563,000
42	1,385	1,268,000	1,241,000	1,428,000	1,374,000	1,587,000	1,507,000	1,747,000	1,640,000
43	1,452	1,329,000	1,301,000	1,496,000	1,441,000	1,664,000	1,580,000	1,831,000	1,719,000
44	1,520	1,392,000	1,362,000	1,567,000	1,508,000	1,742,000	1,654,000	1,917,000	1,800,000
45	1,590	1,456,000	1,425,000	1,639,000	1,578,000	1,822,000	1,730,000	2,005,000	1,883,000
46	1,662	1,521,000	1,489,000	1,712,000	1,649,000	1,904,000	1,808,000	2,095,000	1,968,000
47	1,735	1,588,000	1,554,000	1,788,000	1,721,000	1,988,000	1,888,000	2,187,000	2,054,000
48	1,810	1,656,000	1,621,000	1,865,000	1,795,000	2,073,000	1,969,000	2,282,000	2,143,000

HOOPED COLUMN REINFORCEMENT

(Load in pounds due to hooping)
(Strength of concrete not included)

Diam. of column in inches	Area of column in sq. inches	f_s = 8,000				f_s = 10,000			
		½ % steel	1 % steel	1½ % steel	2 % steel	½ % steel	1 % steel	1½ % steel	2 % steel
10	79	7,540	15,100	22,600	30,200	9,420	18,800	28,300	37,700
11	95	9,120	18,200	27,400	36,500	11,400	22,800	34,200	45,600
12	113	10,860	21,700	32,600	43,400	13,570	27,100	40,700	54,300
13	133	12,740	25,500	38,200	51,000	15,900	31,900	47,800	63,700
14	154	14,780	29,600	44,300	59,100	18,500	36,900	55,400	73,900
15	177	17,000	33,900	50,900	67,900	21,200	42,400	63,600	84,800
16	201	19,300	38,600	57,900	77,200	24,100	48,300	72,400	96,500
17	227	21,800	43,600	65,400	87,200	27,200	54,500	81,700	108,900
18	254	24,400	48,900	73,300	97,700	30,500	61,100	91,600	122,100
19	284	27,200	54,400	81,700	108,900	34,000	68,000	102,100	136,100
20	314	30,200	60,300	90,500	120,600	37,700	75,400	113,100	150,800
21	346	33,300	66,500	99,800	133,000	41,600	83,100	124,700	166,200
22	380	36,500	73,000	109,500	146,000	45,600	91,200	136,800	182,500
23	415	39,900	79,800	119,700	159,500	49,900	99,700	149,600	199,400
24	452	43,400	86,900	130,300	173,700	54,300	108,600	162,900	217,100
25	491	47,100	94,200	141,400	188,500	58,900	117,800	176,700	235,600
26	531	51,000	101,900	152,900	203,900	63,700	127,400	191,100	254,800
27	573	55,000	109,900	164,900	219,900	68,700	137,400	206,100	274,800
28	616	59,100	118,200	177,300	236,400	73,900	147,800	221,700	295,600
29	661	63,400	126,800	190,200	253,600	79,300	158,500	237,800	317,000
30	707	67,900	135,700	203,600	271,400	84,800	169,600	254,500	339,300
31	755	72,500	144,900	217,400	289,800	90,600	181,100	271,700	362,300
32	804	77,200	154,400	231,600	308,800	96,500	193,000	289,500	386,000
33	855	82,100	164,200	246,300	328,400	102,600	205,300	307,900	410,500
34	908	87,200	174,300	261,500	348,600	108,900	217,900	326,800	435,800
35	962	92,400	184,700	277,100	369,400	115,400	230,900	346,400	461,800
36	1,018	97,700	195,400	293,200	390,900	122,100	244,300	366,400	488,600
37	1,075	103,200	206,400	309,700	412,900	129,000	258,000	387,100	516,000
38	1,134	108,900	217,700	326,600	435,500	136,100	272,200	408,300	544,000
39	1,195	114,700	229,400	344,000	458,700	143,300	286,700	430,100	573,000
40	1,257	120,600	241,300	361,900	482,500	150,800	301,600	452,400	603,000
41	1,320	126,800	253,500	380,200	507,000	158,400	316,900	475,300	634,000
42	1,385	133,000	266,000	399,000	532,000	166,200	332,500	498,700	665,000
43	1,452	139,400	278,800	418,200	558,000	174,300	348,500	523,000	697,000
44	1,521	146,000	291,900	437,900	584,000	182,500	364,900	547,000	730,000
45	1,590	152,700	305,400	458,000	611,000	190,800	381,700	573,000	763,000
46	1,662	159,500	319,100	478,600	638,000	199,400	398,900	598,000	798,000
47	1,735	166,600	333,100	499,600	666,000	208,200	416,400	625,000	833,000
48	1,810	173,700	347,400	521,000	695,000	217,100	434,300	651,000	869,000

HOOPED COLUMN REINFORCEMENT

(Load in pounds due to hooping)
(Strength of concrete not included)

Diam. of column in inches	Area of column in sq. inches	f_s = 12,000				f_s = 14,000			
		½ % steel	1 % steel	1½ % steel	2 % steel	½ % steel	1 % steel	1½ % steel	2 % steel
10	79	11,300	22,600	33,900	45,200	13,200	26,400	39,600	52,800
11	95	13,700	27,400	41,100	54,700	16,000	31,900	47,900	63,900
12	113	16,300	32,600	48,900	65,100	19,000	38,000	57,000	76,000
13	133	19,100	38,200	57,300	76,500	22,300	44,600	66,900	89,200
14	154	22,200	44,300	66,500	88,700	25,900	51,700	77,600	103,400
15	177	25,400	50,900	76,300	101,800	29,700	59,400	89,100	118,700
16	201	29,000	57,900	86,900	115,800	33,800	67,600	101,300	135,100
17	227	32,700	65,400	98,100	130,700	38,100	76,300	114,400	152,500
18	254	36,600	73,300	109,900	146,600	42,800	85,500	128,300	171,000
19	284	40,800	81,700	122,500	163,300	47,600	95,300	142,900	190,500
20	314	45,200	90,500	135,700	181,000	52,800	105,600	158,300	211,100
21	346	49,900	99,800	149,600	199,500	58,200	116,400	174,600	232,700
22	380	54,700	109,500	164,200	219,000	63,900	127,700	191,600	255,000
23	415	59,800	119,700	179,500	239,300	69,800	139,600	209,400	279,200
24	452	65,100	130,300	195,400	260,600	76,000	152,000	228,000	304,000
25	491	70,700	141,400	212,100	282,700	82,500	164,900	247,400	329,900
26	531	76,500	152,900	229,400	305,800	89,200	178,400	267,600	356,800
27	573	82,400	164,900	247,300	329,800	96,200	192,400	288,600	384,800
28	616	88,700	177,300	266,000	354,700	103,400	206,900	310,300	413,800
29	661	95,100	190,200	285,300	380,500	110,000	221,900	332,900	443,900
30	707	101,800	203,600	305,400	407,100	118,800	237,500	356,300	475,000
31	755	108,700	217,400	326,100	434,700	126,800	253,600	380,400	507,000
32	804	115,800	231,600	347,400	463,200	135,100	270,200	405,300	540,000
33	855	123,200	246,300	369,500	492,600	143,700	287,400	431,100	575,000
34	908	130,700	261,500	392,200	523,000	152,500	305,100	457,600	610,000
35	962	138,500	277,100	415,600	554,000	161,600	323,300	484,900	647,000
36	1,018	146,600	293,200	439,700	586,000	171,000	342,000	513,000	684,000
37	1,075	154,800	309,700	464,500	619,000	180,600	361,300	542,000	723,000
38	1,134	163,300	326,600	489,900	653,000	190,500	381,100	572,000	762,000
39	1,195	172,000	344,000	516,000	688,000	200,700	401,400	602,000	803,000
40	1,257	180,900	361,900	543,000	724,000	211,100	422,200	633,000	844,000
41	1,320	190,100	380,200	570,000	760,000	221,800	443,600	665,000	887,000
42	1,385	199,500	399,000	598,000	798,000	232,700	465,500	698,000	931,000
43	1,452	209,100	418,200	627,000	836,000	244,000	487,900	732,000	976,000
44	1,521	219,000	437,900	657,000	876,000	255,400	511,000	766,000	1,022,000
45	1,590	229,000	458,000	687,000	916,000	267,200	534,000	802,000	1,069,000
46	1,662	239,300	478,600	718,000	957,000	279,200	558,000	838,000	1,117,000
47	1,735	249,800	499,700	749,000	999,000	291,500	583,000	874,000	1,166,000
48	1,810	260,600	521,000	782,000	1,042,000	304,000	608,000	912,000	1,216,000

HOOPED COLUMN REINFORCEMENT

(Load in pounds due to hooping)
(Strength of concrete not included)

Diam. of column in inches	Area of column in sq. inches	f_s = 16,000				f_s = 18,000			
		½ % steel	1 % steel	1½ % steel	2 % steel	½ % steel	1 % steel	1½ % steel	2 % steel
10	79	15,100	30,200	45,200	60,300	17,000	33,900	50,900	67,900
11	95	18,200	36,500	54,700	73,000	20,500	41,100	61,600	82,100
12	113	21,700	43,400	65,100	86,900	24,400	48,900	73,300	97,700
13	133	25,500	51,000	76,500	101,900	28,700	57,300	86,000	114,700
14	154	29,600	59,100	88,700	118,200	33,300	66,500	99,800	133,000
15	177	33,900	67,900	101,800	135,700	38,200	76,300	114,500	152,700
16	201	38,600	77,200	115,800	154,400	43,400	86,900	130,300	173,700
17	227	43,600	87,200	130,700	174,300	49,000	98,100	147,100	196,100
18	254	48,900	97,700	146,600	195,400	55,000	109,900	164,900	219,900
19	284	54,400	108,900	163,300	217,800	61,200	122,500	183,700	245,000
20	314	60,300	120,600	181,000	241,300	67,900	135,700	203,600	271,400
21	346	66,500	133,000	199,500	266,000	74,800	149,600	224,400	299,300
22	380	73,000	146,000	219,000	291,900	82,100	164,200	246,300	328,400
23	415	79,800	159,500	239,300	319,100	89,700	179,500	269,200	359,000
24	452	86,900	173,700	260,600	347,400	97,700	195,400	293,100	390,900
25	491	94,200	188,500	282,700	377,000	106,000	212,100	318,100	424,100
26	531	101,900	203,900	305,800	407,800	114,700	229,400	344,000	458,700
27	573	109,900	219,900	329,800	439,700	123,700	247,300	371,000	494,700
28	616	118,200	236,400	354,700	472,900	133,000	266,000	399,000	532,000
29	661	126,800	253,600	380,500	507,000	142,700	285,300	428,000	571,000
30	707	135,700	271,400	407,200	543,000	152,700	305,400	458,000	611,000
31	755	144,900	289,800	434,700	580,000	163,000	326,100	489,100	652,000
32	804	154,400	308,800	463,200	618,000	173,700	347,400	521,000	695,000
33	855	164,200	328,400	492,700	657,000	184,700	369,500	554,000	739,000
34	908	174,300	348,600	523,000	697,000	196,100	392,200	588,000	784,000
35	962	184,700	369,400	554,000	739,000	207,800	415,600	623,000	831,000
36	1,018	195,400	390,900	586,000	782,000	219,900	439,700	660,000	879,000
37	1,075	206,400	412,900	619,000	826,000	232,200	464,500	697,000	929,000
38	1,134	217,700	435,500	653,000	871,000	245,000	490,000	735,000	980,000
39	1,195	229,400	458,700	688,000	917,000	258,000	516,000	774,000	1,032,000
40	1,257	241,300	482,500	724,000	965,000	271,400	543,000	814,000	1,086,000
41	1,320	253,500	507,000	760,000	1,014,000	285,200	570,000	855,000	1,141,000
42	1,385	266,000	532,000	798,000	1,064,000	299,200	598,000	898,000	1,197,000
43	1,452	278,800	558,000	836,000	1,115,000	313,700	627,000	941,000	1,255,000
44	1,521	291,900	584,000	876,000	1,168,000	328,400	657,000	985,000	1,314,000
45	1,590	305,400	611,000	916,000	1,221,000	343,500	687,000	1,031,000	1,374,000
46	1,662	319,100	638,000	957,000	1,276,000	359,000	718,000	1,077,000	1,436,000
47	1,735	333,100	666,000	999,000	1,332,000	374,700	749,000	1,124,000	1,499,000
48	1,810	347,400	695,000	1,042,000	1,390,000	390,900	782,000	1,173,000	1,563,000

HOOPED COLUMN REINFORCEMENT

(Load in pounds due to hooping)
(Strength of concrete not included)

Diam. of column in inches	Area of column in sq. inches	f_s = 20,000				f_s = 22,000			
		½ % steel	1 % steel	1½ % steel	2 % steel	½ % steel	1 % steel	1½ % steel	2 % steel
10	79	18,800	37,700	56,500	75,400	20,700	41,500	62,200	82,900
11	95	22,800	45,600	68,400	91,200	25,100	50,200	75,300	100,400
12	113	27,100	54,300	81,400	108,600	29,900	59,700	89,600	119,400
13	133	31,900	63,700	95,600	127,400	35,000	70,100	105,100	140,200
14	154	36,900	73,900	110,800	147,800	40,600	81,300	121,900	162,600
15	177	42,400	84,800	127,200	169,600	46,700	93,300	140,000	186,600
16	201	48,300	96,500	144,800	193,000	53,100	106,200	159,200	212,300
17	227	54,500	108,900	163,400	217,900	59,900	119,800	179,800	239,700
18	254	61,100	122,100	183,200	244,300	67,200	134,400	201,500	268,700
19	284	68,000	136,100	204,100	272,200	74,900	149,700	224,600	299,400
20	314	75,400	150,800	226,200	301,600	82,900	165,900	248,800	331,800
21	346	83,100	166,300	249,400	332,500	91,400	182,900	274,300	365,800
22	380	91,200	182,500	273,700	364,900	100,400	200,700	301,100	401,400
23	415	99,700	199,400	299,100	398,900	109,700	219,400	329,100	438,700
24	452	108,600	217,100	325,700	434,300	119,400	238,900	358,300	477,700
25	491	117,800	235,600	353,400	471,200	129,600	259,200	388,800	518,000
26	531	127,400	254,800	382,300	510,000	140,200	280,300	420,500	561,000
27	573	137,400	274,800	412,200	550,000	151,200	302,300	453,500	605,000
28	616	147,800	295,600	443,300	591,000	162,600	325,100	487,700	650,000
29	661	158,500	317,000	475,600	634,000	174,400	348,800	523,000	698,000
30	707	169,600	339,300	509,000	679,000	186,600	373,200	560,000	746,000
31	755	181,100	362,300	543,000	725,000	199,300	398,500	598,000	797,000
32	804	193,000	386,000	579,000	772,000	212,300	424,600	637,000	849,000
33	855	205,300	410,500	616,000	821,000	225,800	451,600	677,000	903,000
34	908	217,900	435,800	654,000	872,000	239,700	479,400	719,000	959,000
35	962	230,900	461,800	693,000	924,000	254,000	508,000	762,000	1,016,000
36	1,018	244,300	488,600	733,000	977,000	268,700	537,000	806,000	1,075,000
37	1,075	258,000	516,000	774,000	1,032,000	283,900	568,000	852,000	1,135,000
38	1,134	272,200	544,000	817,000	1,089,000	299,400	599,000	898,000	1,198,000
39	1,195	286,700	573,000	860,000	1,147,000	315,400	631,000	946,000	1,261,000
40	1,257	301,600	603,000	905,000	1,206,000	331,700	663,000	995,000	1,327,000
41	1,320	316,800	634,000	951,000	1,267,000	348,500	697,000	1,046,000	1,394,000
42	1,385	332,500	665,000	997,000	1,330,000	365,700	731,000	1,097,000	1,463,000
43	1,452	348,500	697,000	1,046,000	1,394,000	383,400	767,000	1,150,000	1,534,000
44	1,521	364,900	730,000	1,095,000	1,460,000	401,400	803,000	1,204,000	1,606,000
45	1,590	381,700	763,000	1,145,000	1,527,000	419,900	840,000	1,260,000	1,679,000
46	1,662	398,900	798,000	1,197,000	1,595,000	438,700	877,000	1,316,000	1,755,000
47	1,735	416,400	833,000	1,249,000	1,665,000	458,000	916,000	1,374,000	1,832,000
48	1,810	434,300	869,000	1,303,000	1,737,000	477,700	955,000	1,433,000	1,911,000

VERTICAL COLUMN REINFORCEMENT

(Load in pounds due to vertical reinforcement)
(Strength of concrete not included)

$n = 15$

Area of steel, sq. in.	f_c								
	400	450	500	550	600	650	700	750	800
1	5,600	6,300	7,000	7,700	8,400	9,100	9,800	10,500	11,200
2	11,200	12,600	14,000	15,400	16,800	18,200	19,600	21,000	22,400
3	16,800	18,900	21,000	23,100	25,200	27,300	29,400	31,500	33,600
4	22,400	25,200	28,000	30,800	33,600	36,400	39,200	42,000	44,800
5	28,000	31,500	35,000	38,500	42,000	45,500	49,000	52,500	56,000
6	33,600	37,800	42,000	46,200	50,400	54,600	58,800	63,000	67,200
7	39,200	44,100	49,000	53,900	58,800	63,700	68,600	73,500	78,400
8	44,800	50,400	56,000	61,600	67,200	72,800	78,400	84,000	89,600
9	50,400	56,700	63,000	69,300	75,600	81,900	88,200	94,500	100,800
10	56,000	63,000	70,000	77,000	84,000	91,000	98,000	105,000	112,000
11	61,600	69,300	77,000	84,700	92,400	100,100	107,800	115,500	123,200
12	67,200	75,600	84,000	92,400	100,800	109,200	117,600	126,000	134,400
13	72,800	81,900	91,000	100,100	109,200	118,300	127,400	136,500	145,600
14	78,400	88,200	98,000	107,800	117,600	127,400	137,200	147,000	156,800
15	84,000	94,500	105,000	115,500	126,000	136,500	147,000	157,500	168,000
16	89,600	100,800	112,000	123,200	134,400	145,600	156,800	168,000	179,200
17	95,200	107,100	119,000	130,900	142,800	154,700	166,600	178,500	190,400
18	100,800	113,400	126,000	138,600	151,200	163,800	176,400	189,000	201,600
19	106,400	119,700	133,000	146,300	159,600	172,900	186,200	199,500	212,800
20	112,000	126,000	140,000	154,000	168,000	182,000	196,000	210,000	224,000
21	117,600	132,300	147,000	161,700	176,400	191,100	205,800	220,500	235,200
22	123,200	138,600	154,000	169,400	184,800	200,200	215,600	231,000	246,400
23	128,800	144,900	161,000	177,100	193,200	209,300	225,400	241,500	257,600
24	134,400	151,200	168,000	184,800	201,600	218,400	235,200	252,000	268,800
25	140,000	157,500	175,000	192,500	210,000	227,500	245,000	262,500	280,000
26	145,600	163,800	182,000	200,200	218,400	236,600	254,800	273,000	291,200
27	151,200	170,100	189,000	207,900	226,800	245,700	264,600	283,500	302,400
28	156,800	176,400	196,000	215,600	235,200	254,800	274,400	294,000	313,600
29	162,400	182,700	203,000	223,300	243,600	263,900	284,200	304,500	324,800
30	168,000	189,000	210,000	231,000	252,000	273,000	294,000	315,000	336,000
31	173,600	195,300	217,000	238,700	260,400	282,100	303,800	325,500	347,200
32	179,200	201,600	224,000	246,400	268,800	291,200	313,600	336,000	358,400
33	184,800	207,900	231,000	254,100	277,200	300,300	323,400	346,500	369,600
34	190,400	214,200	238,000	261,800	285,600	309,400	333,200	357,000	380,800
35	196,000	220,500	245,000	269,500	294,000	318,500	343,000	367,500	392,000
36	201,600	226,800	252,000	277,200	302,400	327,600	352,800	378,000	403,200

VERTICAL COLUMN REINFORCEMENT

(Load in pounds due to vertical reinforcement)
(Strength of concrete not included)
$n = 12$

Area of steel, sq. in.	f_c								
	400	450	500	550	600	650	700	750	800
1	4,400	4,950	5,500	6,050	6,600	7,150	7,700	8,250	8,800
2	8,800	9,900	11,000	12,100	13,200	14,300	15,400	16,500	17,600
3	13,200	14,850	16,500	18,150	19,800	21,450	23,100	24,750	26,400
4	17,600	19,800	22,000	24,200	26,400	28,600	30,800	33,000	35,200
5	22,000	24,750	27,500	30,250	33,000	35,750	38,500	41,250	44,000
6	26,400	29,700	33,000	36,300	39,600	42,900	46,200	49,500	52,800
7	30,800	34,650	38,500	42,350	46,200	50,050	53,900	57,750	61,600
8	35,200	39,600	44,000	48,400	52,800	57,200	61,600	66,000	70,400
9	39,600	44,550	49,500	54,450	59,400	64,350	69,300	74,250	79,200
10	44,000	49,500	55,000	60,500	66,000	71,500	77,000	82,500	88,000
11	48,400	54,450	60,500	66,550	72,600	78,650	84,700	90,750	96,800
12	52,800	59,400	66,000	72,600	79,200	85,800	92,400	99,000	105,600
13	57,200	64,350	71,500	78,650	85,800	92,950	100,100	107,250	114,400
14	61,600	69,300	77,000	84,700	92,400	100,100	107,800	115,500	123,200
15	66,000	74,250	82,500	90,750	99,000	107,250	115,500	123,750	132,000
16	70,400	79,200	88,000	96,800	105,600	114,400	123,200	132,000	140,800
17	74,800	84,150	93,500	102,850	112,200	121,550	130,900	140,250	149,600
18	79,200	89,100	99,000	108,900	118,800	128,700	138,600	148,500	158,400
19	83,600	94,050	104,500	114,950	125,400	135,850	146,300	156,750	167,200
20	88,000	99,000	110,000	121,000	132,000	143,000	154,000	165,000	176,000
21	92,400	103,950	115,500	127,050	138,600	150,150	161,700	173,250	184,800
22	96,800	108,900	121,000	133,100	145,200	157,300	169,400	181,500	193,600
23	101,200	113,850	126,500	139,150	151,800	164,450	177,100	189,750	202,400
24	105,600	118,800	132,000	145,200	158,400	171,600	184,800	198,000	211,200
25	110,000	123,750	137,500	151,250	165,000	178,750	192,500	206,250	220,000
26	114,400	128,700	143,000	157,300	171,600	185,900	200,200	214,500	228,800
27	118,800	133,650	148,500	163,350	178,200	193,050	207,900	222,750	237,600
28	123,200	138,600	154,000	169,400	184,800	200,200	215,600	231,000	246,400
29	127,600	143,550	159,500	175,450	191,400	207,350	223,300	239,250	255,200
30	132,000	148,500	165,000	181,500	198,000	214,500	231,000	247,500	264,000
31	136,400	153,450	170,500	187,550	204,600	221,650	238,700	255,750	272,800
32	140,800	158,400	176,000	193,600	211,200	228,800	246,400	264,000	281,600
33	145,200	163,350	181,500	199,650	217,800	235,950	254,100	272,250	290,400
34	149,600	168,300	187,000	205,700	224,400	243,100	261,800	280,500	299,200
35	154,000	173,250	192,500	211,750	231,000	250,250	269,500	288,750	308,000
36	158,400	178,200	198,000	217,800	237,600	257,400	277,200	297,000	316,800

VERTICAL COLUMN REINFORCEMENT

(Load in pounds due to vertical reinforcement)
(Strength of concrete not included)

$n = 10$

Area of steel, sq. in.	f_c								
	400	450	500	550	600	650	700	750	800
1	3,600	4,050	4,500	4,950	5,400	5,850	6,300	6,750	7,200
2	7,200	8,100	9,000	9,900	10,800	11,700	12,600	13,500	14,400
3	10,800	12,150	13,500	14,850	16,200	17,550	18,900	20,250	21,600
4	14,400	16,200	18,000	19,800	21,600	23,400	25,200	27,000	28,800
5	18,000	20,250	22,500	24,750	27,000	29,250	31,500	33,750	36,000
6	21,600	24,300	27,000	29,700	32,400	35,100	37,800	40,500	43,200
7	25,200	28,350	31,500	34,650	37,800	40,950	44,100	47,250	50,400
8	28,800	32,400	36,000	39,600	43,200	46,800	50,400	54,000	57,600
9	32,400	36,450	40,500	44,550	48,600	52,650	56,700	60,750	64,800
10	36,000	40,500	45,000	49,500	54,000	58,500	63,000	67,500	72,000
11	39,600	44,550	49,500	54,450	59,400	64,350	69,300	74,250	79,200
12	43,200	48,600	54,000	59,400	64,800	70,200	75,600	81,000	86,400
13	46,800	52,650	58,500	64,350	70,200	76,050	81,900	87,750	93,600
14	50,400	56,700	63,000	69,300	75,600	81,900	88,200	94,500	100,800
15	54,000	60,750	67,500	74,250	81,000	87,750	94,500	101,250	108,000
16	57,600	64,800	72,000	79,200	86,400	93,600	100,800	108,000	115,200
17	61,200	68,850	76,500	84,150	91,800	99,450	107,100	114,750	122,400
18	64,800	72,900	81,000	89,100	97,200	105,300	113,400	121,500	129,600
19	68,400	76,950	85,500	94,050	102,600	111,150	119,700	128,250	136,800
20	72,000	81,000	90,000	99,000	108,000	117,000	126,000	135,000	144,000
21	75,600	85,050	94,500	103,950	113,400	122,850	132,300	141,750	151,200
22	79,200	89,100	99,000	108,900	118,800	128,700	138,600	148,500	158,400
23	82,800	93,150	103,500	113,850	124,200	134,550	144,900	155,250	165,600
24	86,400	97,200	108,000	118,800	129,600	140,400	151,200	162,000	172,800
25	90,000	101,250	112,500	123,750	135,000	146,250	157,500	168,750	180,000
26	93,600	105,300	117,000	128,700	140,400	152,100	163,800	175,500	187,200
27	97,200	109,350	121,500	133,650	145,800	157,950	170,100	182,250	194,400
28	100,800	113,400	126,000	138,600	151,200	163,800	176,400	189,000	201,600
29	104,400	117,450	130,500	143,550	156,600	169,650	182,700	195,750	208,800
30	108,000	121,500	135,000	148,500	162,000	175,500	189,000	202,500	216,000
31	111,600	125,550	139,500	153,450	167,400	181,350	195,300	209,250	223,200
32	115,200	129,600	144,000	158,400	172,800	187,200	201,600	216,000	230,400
33	118,800	133,650	148,500	163,350	178,200	193,050	207,900	222,750	237,600
34	122,400	137,700	153,000	168,300	183,600	198,900	214,200	229,500	244,800
35	126,000	141,750	157,500	173,250	189,000	204,750	220,500	236,250	252,000
36	129,600	145,800	162,000	178,200	194,400	210,600	226,800	243,000	259,200

SPACING AND PERCENTAGES OF COLUMN HOOPING

(Wire gauges are American Steel and Wire Co.'s standard)

Diam. of column	Spacing of hoops, inches	Gauge	4	3	2	1	0	2–0	3–0	4–0	5–0	6–0	7–0
		Diam.	.225	.244	.263	.283	.307	.331	.362	.394	.430	.460	.490
		Area	.040	.047	.054	.063	.074	.086	.103	.122	.145	.166	.188
10	1	.....	1.60	1.88	2.16	2.52							
	1½	.....	1.07	1.25	1.44	1.68	1.97	2.29					
	2	.....	0.80	0.94	1.08	1.26	1.48	1.72	2.06	2.44			
	2½	.....	0.64	0.75	0.86	1.01	1.18	1.38	1.65	1.95	2.32		
11	1	.....	1.45	1.71	1.96	2.29							
	1½	.....	0.97	1.14	1.31	1.53	1.79	2.08	2.50				
	2	.....	0.73	0.85	0.98	1.15	1.35	1.56	1.87	2.22			
	2½	.....	0.58	0.68	0.79	0.93	1.08	1.25	1.50	1.77	2.11	2.41	
	3	.....	0.48	0.57	0.65	0.76	0.90	1.04	1.25	1.48	1.76	2.01	2.28
12	1	.....	1.33	1.57	1.80	2.10	2.47						
	1½	.....	0.89	1.04	1.20	1.40	1.64	1.91	2.29				
	2	.....	0.67	0.78	0.90	1.05	1.23	1.43	1.72	2.03	2.42		
	2½	.....	0.53	0.63	0.72	0.84	0.99	1.15	1.37	1.63	1.93	2.21	2.51
	3	.....	....	0.52	0.60	0.70	0.82	0.96	1.14	1.36	1.61	1.84	2.09
13	1	.....	1.23	1.45	1.66	1.94	2.28						
	1½	.....	0.82	0.96	1.11	1.29	1.52	1.76	2.11	2.50			
	2	.....	0.62	0.72	0.83	0.97	1.14	1.32	1.58	1.88	2.23	2.55	
	2½	.....	0.49	0.58	0.66	0.78	0.91	1.06	1.27	1.50	1.78	2.04	2.31
	3	.....	....	0.48	0.55	0.65	0.76	0.88	1.06	1.25	1.49	1.70	1.93
14	1½	.....	0.76	0.90	1.03	1.20	1.41	1.64	1.96	2.32			
	2	.....	0.57	0.67	0.77	0.90	1.06	1.23	1.47	1.74	2.07	2.37	
	2½	.....	....	0.54	0.62	0.72	0.85	0.98	1.18	1.39	1.66	1.90	2.15
	3	.....	....	....	0.51	0.60	0.70	0.82	0.98	1.16	1.38	1.58	1.79
	3½	.....	....	....	....	0.51	0.60	0.70	0.84	1.00	1.18	1.36	1.53
15	1½	.....	0.71	0.84	0.96	1.12	1.32	1.53	1.83	2.17	2.58		
	2	.....	0.53	0.63	0.72	0.84	0.99	1.15	1.37	1.63	1.93	2.21	2.51
	2½	.....	....	0.50	0.58	0.67	0.79	0.92	1.10	1.30	1.55	1.77	2.01
	3	.....	....	....	0.48	0.56	0.66	0.76	0.92	1.08	1.29	1.48	1.67
	3½	.....	....	....	....	0.48	0.56	0.66	0.78	0.93	1.10	1.26	1.43
16	1½	.....	0.67	0.78	0.90	1.05	1.23	1.43	1.72	2.03	2.42		
	2	.....	0.50	0.59	0.68	0.79	0.93	1.08	1.29	1.53	1.81	2.08	2.35
	2½	.....	....	....	0.54	0.63	0.74	0.86	1.03	1.22	1.45	1.66	1.88
	3	.....	....	....	....	0.53	0.62	0.72	0.86	1.02	1.21	1.38	1.57
	3½	.....	....	....	....	....	0.52	0.61	0.74	0.87	1.04	1.19	1.34

SPACING AND PERCENTAGES OF COLUMN HOOPING

(Wire gauges are American Steel and Wire Co.'s standard)

Diam. of column	Spacing of hoops, inches	Gauge	4	3	2	1	0	2–0	3–0	4–0	5–0	6–0	7–0
		Diam.	.225	.244	.263	.283	.307	.331	.362	.394	.430	.460	.490
		Area	.040	.047	.054	.063	.074	.086	.103	.122	.145	.166	.188
17	1½	.....	0.63	0.74	0.85	0.99	1.16	1.35	1.62	1.91	2.27		
	2	.....	....	0.55	0.64	0.74	0.87	1.01	1.21	1.44	1.71	1.95	2.21
	2½	.....	....	....	0.51	0.59	0.70	0.81	0.97	1.15	1.36	1.56	1.77
	3	.....	....	....	....	0.49	0.58	0.67	0.81	0.96	1.14	1.30	1.47
	3½	.....	....	....	....	....	0.50	0.58	0.69	0.82	0.97	1.12	1.26
	4	.....	....	....	....	....	....	0.51	0.61	0.72	0.85	0.98	1.11
18	1½	.....	0.59	0.70	0.80	0.93	1.10	1.27	1.53	1.81	2.15	2.46	
	2	.....	....	0.52	0.60	0.70	0.82	0.96	1.14	1.36	1.61	1.84	2.09
	2½	.....	....	....	0.48	0.56	0.66	0.76	0.92	1.08	1.29	1.48	1.67
	3	.....	....	....	....	....	0.55	0.64	0.76	0.90	1.07	1.23	1.39
	3½	.....	....	....	....	....	....	0.55	0.65	0.77	0.92	1.05	1.19
	4	.....	....	....	....	....	....	0.48	0.57	0.68	0.81	0.92	1.04
19	1½	.....	0.56	0.66	0.76	0.88	1.04	1.21	1.45	1.71	2.04	2.33	
	2	.....	....	0.49	0.57	0.66	0.78	0.91	1.08	1.28	1.53	1.75	1.98
	2½	.....	....	....	....	0.53	0.62	0.72	0.87	1.03	1.22	1.40	1.58
	3	.....	....	....	....	....	0.52	0.60	0.72	0.86	1.02	1.16	1.32
	3½	.....	....	....	....	....	....	0.52	0.62	0.73	0.87	1.00	1.13
	4	.....	....	....	....	....	....	....	0.54	0.64	0.76	0.87	0.99
20	1½	.....	0.53	0.63	0.72	0.84	0.99	1.15	1.37	1.63	1.93	2.21	2.51
	2	.....	....	....	0.54	0.63	0.74	0.86	1.03	1.22	1.45	1.66	1.88
	2½	.....	....	....	....	0.50	0.59	0.69	0.82	0.98	1.16	1.33	1.50
	3	.....	....	....	....	....	0.49	0.57	0.69	0.81	0.97	1.11	1.25
	3½	.....	....	....	....	....	....	0.49	0.59	0.70	0.83	0.95	1.07
	4	.....	....	....	....	....	....	....	0.52	0.61	0.73	0.83	0.94
21	1½	.....	0.51	0.60	0.69	0.80	0.94	1.09	1.31	1.55	1.84	2.11	2.39
	2	.....	....	....	0.51	0.60	0.70	0.82	0.98	1.16	1.38	1.58	1.79
	2½	.....	....	....	....	0.48	0.56	0.66	0.78	0.93	1.10	1.26	1.43
	3	.....	....	....	....	....	....	0.55	0.65	0.77	0.92	1.05	1.19
	3½	.....	....	....	....	....	....	....	0.56	0.66	0.79	0.90	1.02
	4	.....	....	....	....	....	....	....	0.49	0.58	0.69	0.79	0.90
	4½	.....	....	....	....	....	....	....	....	0.52	0.61	0.70	0.80
22	1½	.....	0.48	0.57	0.65	0.76	0.90	1.04	1.25	1.48	1.76	2.01	2.28
	2	.....	....	....	0.49	0.57	0.67	0.78	0.94	1.11	1.32	1.51	1.71
	2½	.....	....	....	....	....	0.54	0.63	0.75	0.89	1.05	1.21	1.37
	3	.....	....	....	....	....	....	0.52	0.62	0.74	0.88	1.01	1.14
	3½	.....	....	....	....	....	....	....	0.54	0.63	0.75	0.86	0.98
	4	.....	....	....	....	....	....	....	....	0.55	0.66	0.75	0.85
	4½	.....	....	....	....	....	....	....	....	....	0.59	0.67	0.76

SPACING AND PERCENTAGES OF COLUMN HOOPING

(Wire gauges are American Steel and Wire Co.'s standard)

Diam. of column	Spacing of hoops, inches	Gauge	3	2	1	0	2–0	3–0	4–0	5–0	6–0	7–0	1″ × ¼″ Flats
		Diam.	.244	.263	.283	.307	.331	.362	.394	.430	.460	.490	
		Area	.047	.054	.063	.074	.086	.103	.122	.145	.166	.188	.250
23	1½	.....	0.54	0.63	0.73	0.86	1.00	1.19	1.41	1.68	1.92	2.18	2.90
	2	.....	....	....	0.55	0.64	0.75	0.90	1.06	1.26	1.44	1.63	2.17
	2½	.....	....	....	....	0.51	0.60	0.72	0.85	1.01	1.15	1.31	1.74
	3	.....	....	....	....	....	0.50	0.60	0.71	0.84	0.96	1.09	1.45
	3½	.....	....	....	....	....	....	0.51	0.61	0.72	0.82	0.93	1.24
	4	.....	....	....	....	....	....	....	0.53	0.63	0.72	0.82	1.09
	4½	.....	....	....	....	....	....	....	....	0.56	0.64	0.73	0.97
24	1½	.....	0.52	0.60	0.70	0.82	0.96	1.14	1.36	1.61	1.84	2.09	2.78
	2	.....	....	....	0.53	0.62	0.72	0.86	1.02	1.21	1.38	1.57	2.08
	2½	.....	....	....	....	0.49	0.57	0.69	0.81	0.97	1.11	1.25	1.67
	3	.....	....	....	....	....	0.48	0.57	0.68	0.81	0.92	1.04	1.39
	3½	.....	....	....	....	....	....	0.49	0.58	0.69	0.79	0.90	1.19
	4	.....	....	....	....	....	....	....	0.51	0.60	0.69	0.78	1.04
	4½	.....	....	....	....	....	....	....	....	0.54	0.61	0.70	0.93
25	1½	.....	0.50	0.58	0.67	0.79	0.92	1.10	1.30	1.55	1.77	2.01	2.67
	2	.....	....	....	0.50	0.59	0.69	0.82	0.98	1.16	1.33	1.51	2.00
	2½	.....	....	....	....	....	0.55	0.66	0.78	0.93	1.06	1.20	1.60
	3	.....	....	....	....	....	....	0.55	0.65	0.77	0.89	1.00	1.33
	3½	.....	....	....	....	....	....	....	0.56	0.66	0.76	0.86	1.14
	4	.....	....	....	....	....	....	....	0.49	0.58	0.66	0.75	1.00
	4½	.....	....	....	....	....	....	....	....	0.52	0.59	0.67	0.89
	5	.....	....	....	....	....	....	....	....	....	0.53	0.60	0.80
26	1½	.....	0.48	0.55	0.65	0.76	0.88	1.06	1.25	1.49	1.70	1.93	2.56
	2	.....	....	....	0.48	0.57	0.66	0.79	0.94	1.12	1.28	1.45	1.92
	2½	.....	....	....	....	....	0.53	0.63	0.75	0.89	1.02	1.16	1.54
	3	.....	....	....	....	....	....	0.53	0.63	0.74	0.85	0.96	1.28
	3½	.....	....	....	....	....	....	....	0.54	0.64	0.73	0.83	1.10
	4	.....	....	....	....	....	....	....	....	0.56	0.64	0.72	0.96
	4½	.....	....	....	....	....	....	....	....	....	0.57	0.64	0.85
	5	.....	....	....	....	....	....	....	....	....	0.51	0.58	0.77
27	1½	.....	....	0.53	0.62	0.73	0.85	1.02	1.20	1.43	1.64	1.86	2.47
	2	.....	....	....	....	0.55	0.64	0.76	0.90	1.07	1.23	1.39	1.85
	2½	.....	....	....	....	....	0.51	0.61	0.72	0.86	0.98	1.11	1.48
	3	.....	....	....	....	....	....	0.51	0.60	0.72	0.82	0.93	1.23
	3½	.....	....	....	....	....	....	....	0.52	0.61	0.70	0.80	1.06
	4	.....	....	....	....	....	....	....	....	0.54	0.61	0.70	0.93
	4½	.....	....	....	....	....	....	....	....	....	0.55	0.62	0.82
	5	.....	....	....	....	....	....	....	....	....	0.49	0.56	0.74

SPACING AND PERCENTAGES OF COLUMN HOOPING

(Wire gauges are American Steel and Wire Co.'s standard)

Diam. of column	Spacing of hoops, inches	Gauge	2	1	0	2–0	3–0	4–0	5–0	6–0	7–0	Flat bars, inches	
		Diam.	.263	.283	.307	.331	.362	.394	.430	.460	.490	1 × 1/4	1 × 5/16
		Area	.054	.063	.074	.086	.103	.122	.145	.166	.188	.250	.312
28	1½	.....	0.51	0.60	0.70	0.82	0.98	1.16	1.38	1.58	1.79	2.38	
	2	.....	.....	.....	0.53	0.61	0.74	0.87	1.04	1.19	1.34	1.79	2.23
	2½	.....	.....	.....	.....	0.49	0.59	0.70	0.83	0.95	1.07	1.43	1.79
	3	.....	.....	.....	.....	.....	0.49	0.58	0.69	0.79	0.90	1.19	1.49
	3½	.....	.....	.....	.....	.....	.....	0.50	0.59	0.68	0.77	1.02	1.28
	4	.....	.....	.....	.....	.....	.....	.....	0.52	0.59	0.67	0.89	1.12
	4½	.....	.....	.....	.....	.....	.....	.....	.....	0.53	0.60	0.79	0.99
	5	.....	.....	.....	.....	.....	.....	.....	.....	0.47	0.54	0.71	0.89
29	1½	.....	0.50	0.58	0.68	0.79	0.95	1.12	1.33	1.53	1.73	2.30	
	2	.....	.....	.....	0.51	0.59	0.71	0.84	1.00	1.14	1.30	1.72	2.16
	2½	.....	.....	.....	.....	.....	0.57	0.67	0.80	0.92	1.04	1.38	1.72
	3	.....	.....	.....	.....	.....	.....	0.56	0.67	0.76	0.86	1.15	1.44
	3½	.....	.....	.....	.....	.....	.....	0.48	0.57	0.65	0.74	0.99	1.23
	4	.....	.....	.....	.....	.....	.....	.....	0.50	0.57	0.65	0.86	1.08
	4½	.....	.....	.....	.....	.....	.....	.....	.....	0.51	0.58	0.77	0.96
	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.52	0.69	0.86
30	1½	.....	0.48	0.56	0.66	0.76	0.92	1.08	1.29	1.48	1.67	2.22	
	2	.....	.....	.....	0.49	0.57	0.69	0.81	0.97	1.11	1.25	1.67	2.08
	2½	.....	.....	.....	.....	.....	0.55	0.65	0.77	0.89	1.00	1.33	1.67
	3	.....	.....	.....	.....	.....	.....	0.54	0.64	0.74	0.84	1.11	1.39
	3½	.....	.....	.....	.....	.....	.....	.....	0.55	0.63	0.72	0.95	1.19
	4	.....	.....	.....	.....	.....	.....	.....	0.48	0.55	0.63	0.83	1.04
	4½	.....	.....	.....	.....	.....	.....	.....	.....	0.49	0.56	0.74	0.93
	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.50	0.67	0.83
31	1½	.....	.....	0.54	0.64	0.74	0.89	1.05	1.25	1.43	1.62	2.15	
	2	.....	.....	.....	0.48	0.55	0.66	0.79	0.94	1.07	1.21	1.61	2.02
	2½	.....	.....	.....	.....	.....	0.53	0.63	0.75	0.86	0.97	1.29	1.61
	3	.....	.....	.....	.....	.....	.....	0.52	0.62	0.71	0.81	1.08	1.34
	3½	.....	.....	.....	.....	.....	.....	.....	0.53	0.61	0.69	0.92	1.15
	4	.....	.....	.....	.....	.....	.....	.....	.....	0.54	0.61	0.81	1.01
	4½	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.54	0.72	0.90
	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.49	0.65	0.81
32	1½	.....	.....	0.53	0.62	0.72	0.86	1.02	1.21	1.38	1.57	2.08	2.60
	2	.....	.....	.....	.....	0.54	0.64	0.76	0.91	1.04	1.18	1.56	1.95
	2½	.....	.....	.....	.....	.....	0.52	0.61	0.73	0.83	0.94	1.25	1.56
	3	.....	.....	.....	.....	.....	.....	0.51	0.60	0.69	0.78	1.04	1.30
	3½	.....	.....	.....	.....	.....	.....	.....	0.52	0.59	0.67	0.89	1.12
	4	.....	.....	.....	.....	.....	.....	.....	.....	0.52	0.59	0.78	0.98
	4½	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.52	0.69	0.87
	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.47	0.63	0.78

SPACING AND PERCENTAGES OF COLUMN HOOPING

(Wire gauges are American Steel and Wire Co.'s standard)

Diam. of column	Spacing of hoops, inches	Gauge	1	0	2–0	3–0	4–0	5–0	6–0	7–0	Flat bars, inches		
		Diam.	.283	.307	.331	.362	.394	.430	.460	.490	1 × 1/4	1 × 5/16	1 1/2 × 1/4
		Area	.063	.074	.086	.103	.122	.145	.166	.188	.250	.312	.375
33	1½	.....	0.51	0.60	0.69	0.83	0.99	1.17	1.34	1.52	2.02	2.53	
	2	.....	....	....	0.52	0.62	0.74	0.88	1.01	1.14	1.52	1.89	2.27
	2½	.....	....	....	....	0.50	0.59	0.70	0.80	0.91	1.21	1.52	1.82
	3	.....	....	....	....	....	0.49	0.59	0.67	0.76	1.01	1.26	1.52
	3½	.....	....	....	....	....	....	0.50	0.58	0.65	0.87	1.08	1.30
	4	.....	....	....	....	....	....	....	0.50	0.57	0.76	0.95	1.14
	4½	.....	....	....	....	....	....	....	....	0.51	0.67	0.84	1.01
	5	.....	....	....	....	....	....	....	....	....	0.61	0.76	0.91
34	1½	.....	0.49	0.58	0.67	0.81	0.96	1.14	1.30	1.47	1.96	2.45	
	2	.....	....	....	0.51	0.61	0.72	0.85	0.98	1.11	1.47	1.84	2.21
	2½	.....	....	....	....	0.48	0.57	0.68	0.78	0.88	1.18	1.47	1.76
	3	.....	....	....	....	....	0.48	0.57	0.65	0.74	0.98	1.23	1.47
	3½	.....	....	....	....	....	....	0.49	0.56	0.63	0.84	1.05	1.26
	4	.....	....	....	....	....	....	....	0.49	0.55	0.74	0.92	1.10
	4½	.....	....	....	....	....	....	....	....	0.49	0.65	0.82	0.98
	5	.....	....	....	....	....	....	....	....	....	0.59	0.74	0.88
35	1½	.....	....	0.56	0.66	0.78	0.93	1.10	1.26	1.43	1.90	2.38	
	2	.....	....	....	0.49	0.59	0.70	0.83	0.95	1.07	1.43	1.79	2.14
	2½	.....	....	....	....	....	0.56	0.66	0.76	0.86	1.14	1.43	1.71
	3	.....	....	....	....	....	....	0.55	0.63	0.72	0.95	1.19	1.43
	3½	.....	....	....	....	....	....	....	0.54	0.61	0.82	1.02	1.22
	4	.....	....	....	....	....	....	....	....	0.54	0.71	0.89	1.07
	4½	.....	....	....	....	....	....	....	....	0.48	0.63	0.79	0.95
	5	.....	....	....	....	....	....	....	....	....	0.57	0.71	0.86
36	1½	.....	....	0.55	0.64	0.76	0.90	1.07	1.23	1.39	1.85	2.31	
	2	.....	....	....	0.48	0.57	0.68	0.81	0.92	1.04	1.39	1.74	2.08
	2½	.....	....	....	....	....	0.54	0.64	0.74	0.84	1.11	1.39	1.67
	3	.....	....	....	....	....	....	0.54	0.61	0.70	0.93	1.16	1.39
	3½	.....	....	....	....	....	....	....	0.53	0.60	0.79	0.99	1.19
	4	.....	....	....	....	....	....	....	....	0.52	0.69	0.87	1.04
	4½	.....	....	....	....	....	....	....	....	....	0.62	0.77	0.93
	5	.....	....	....	....	....	....	....	....	....	0.56	0.69	0.83
37	1½	.....	....	0.53	0.62	0.74	0.88	1.04	1.20	1.35	1.80	2.25	
	2	.....	....	....	....	0.56	0.66	0.78	0.90	1.02	1.35	1.69	2.03
	2½	.....	....	....	....	....	0.53	0.63	0.72	0.81	1.08	1.35	1.62
	3	.....	....	....	....	....	....	0.52	0.60	0.68	0.90	1.13	1.35
	3½	.....	....	....	....	....	....	....	0.51	0.58	0.77	0.97	1.16
	4	.....	....	....	....	....	....	....	....	0.51	0.68	0.84	1.01
	4½	.....	....	....	....	....	....	....	....	....	0.60	0.75	0.90
	5	.....	....	....	....	....	....	....	....	....	0.54	0.68	0.81

SPACING AND PERCENTAGES OF COLUMN HOOPING

(Wire gauges are American Steel and Wire Co.'s standard)

Diam. of column	Spacing of hoops, inches	Gauge	0	2–0	3–0	4–0	5–0	6–0	7–0	Flat bars, inches			
		Diam.	.307	.331	.362	.394	.430	.460	.490	1 × 1/4	1 × 5/16	1 1/2 × 1/4	1 1/2 × 5/16
		Area	.074	.086	.103	.122	.145	.166	.188	.250	.312	.375	.469
38	1½	.....	0.52	0.60	0.72	0.86	1.02	1.16	1.32	1.75	2.19		
	2	.....	....	....	0.54	0.64	0.76	0.87	0.99	1.32	1.64	1.97	2.47
	2½	.....	....	....	....	0.51	0.61	0.70	0.79	1.05	1.32	1.58	1.97
	3	.....	....	....	....	....	0.51	0.58	0.66	0.88	1.10	1.32	1.64
	3½	.....	....	....	....	....	....	0.50	0.57	0.75	0.94	1.13	1.41
	4	.....	....	....	....	....	....	....	0.49	0.66	0.82	0.99	1.23
	4½	.....	....	....	....	....	....	....	....	0.58	0.73	0.88	1.10
	5	.....	....	....	....	....	....	....	....	0.53	0.66	0.79	0.99
39	1½	.....	0.51	0.59	0.70	0.83	0.99	1.14	1.29	1.71	2.14	2.56	
	2	.....	....	....	0.53	0.63	0.74	0.85	0.96	1.28	1.60	1.92	2.40
	2½	.....	....	....	....	0.50	0.59	0.68	0.77	1.03	1.28	1.54	1.92
	3	.....	....	....	....	....	0.50	0.57	0.64	0.85	1.07	1.28	1.60
	3½	.....	....	....	....	....	....	0.49	0.55	0.73	0.92	1.10	1.37
	4	.....	....	....	....	....	....	....	0.48	0.64	0.80	0.96	1.20
	4½	.....	....	....	....	....	....	....	....	0.57	0.71	0.85	1.07
	5	.....	....	....	....	....	....	....	....	0.51	0.64	0.77	0.96
40	1½	.....	0.49	0.57	0.69	0.81	0.97	1.11	1.25	1.67	2.08	2.50	
	2	.....	....	....	0.52	0.61	0.73	0.83	0.94	1.25	1.56	1.88	2.34
	2½	.....	....	....	....	0.49	0.58	0.66	0.75	1.00	1.25	1.50	1.80
	3	.....	....	....	....	....	0.48	0.55	0.63	0.83	1.04	1.25	1.56
	3½	.....	....	....	....	....	....	....	0.54	0.71	0.89	1.07	1.34
	4	.....	....	....	....	....	....	....	....	0.63	0.78	0.94	1.17
	4½	.....	....	....	....	....	....	....	....	0.56	0.69	0.83	1.04
	5	.....	....	....	....	....	....	....	....	0.50	0.63	0.75	0.94
41	1½	.....	....	0.56	0.67	0.79	0.94	1.08	1.22	1.63	2.03	2.44	
	2	.....	....	....	0.50	0.60	0.71	0.81	0.92	1.22	1.52	1.83	2.29
	2½	.....	....	....	....	0.48	0.57	0.65	0.73	0.98	1.22	1.46	1.83
	3	.....	....	....	....	....	....	0.54	0.61	0.81	1.02	1.22	1.52
	3½	.....	....	....	....	....	....	....	0.52	0.70	0.87	1.05	1.31
	4	.....	....	....	....	....	....	....	....	0.61	0.76	0.91	1.14
	4½	.....	....	....	....	....	....	....	....	0.54	0.68	0.81	1.02
	5	.....	....	....	....	....	....	....	....	0.49	0.61	0.73	0.91
42	1½	.....	....	0.55	0.65	0.77	0.92	1.05	1.19	1.59	1.98	2.38	
	2	.....	....	....	0.49	0.58	0.69	0.79	0.90	1.19	1.49	1.79	2.23
	2½	.....	....	....	....	....	0.55	0.63	0.72	0.95	1.19	1.43	1.79
	3	.....	....	....	....	....	....	0.53	0.60	0.79	0.99	1.19	1.49
	3½	.....	....	....	....	....	....	....	0.51	0.68	0.85	1.02	1.28
	4	.....	....	....	....	....	....	....	....	0.60	0.74	0.89	1.12
	4½	.....	....	....	....	....	....	....	....	0.53	0.66	0.79	0.99
	5	.....	....	....	....	....	....	....	....	0.48	0.60	0.71	0.89

SPACING AND PERCENTAGES OF COLUMN HOOPING

(Wire gauges are American Steel and Wire Co.'s standard)

Diam. of column	Spacing of hoops, inches	Gauge	2–0	3–0	4–0	5–0	6–0	7–0	Flat bars, inches				
		Diam.	.331	.362	.394	.430	.460	.490	1 × 1/4	1 × 5/16	1 1/2 × 1/4	1 1/2 × 5/16	1 1/2 × 3/8
		Area	.086	.103	.122	.145	.166	.188	.250	.312	.375	.469	.563
43	1½	.....	0.53	0.64	0.76	0.90	1.03	1.17	1.55	1.94	2.33		
	2	.....	....	0.48	0.57	0.67	0.77	0.87	1.16	1.45	1.74	2.18	
	2½	.....	....	....	....	0.54	0.62	0.70	0.93	1.16	1.40	1.74	2.09
	3	.....	....	....	....	....	0.51	0.58	0.78	0.97	1.16	1.45	1.74
	3½	.....	....	....	....	....	....	0.50	0.66	0.83	1.00	1.25	1.50
	4	.....	....	....	....	....	....	....	0.58	0.73	0.87	1.09	1.31
	4½	.....	....	....	....	....	....	....	0.52	0.65	0.78	0.97	1.16
	5	.....	....	....	....	....	....	....	....	0.58	0.70	0.87	1.05
44	1½	.....	0.52	0.62	0.74	0.88	1.01	1.14	1.52	1.89	2.27		
	2	.....	....	....	0.55	0.66	0.75	0.85	1.14	1.42	1.70	2.13	2.56
	2½	.....	....	....	....	0.53	0.60	0.68	0.91	1.14	1.36	1.70	2.05
	3	.....	....	....	....	....	0.50	0.57	0.76	0.95	1.14	1.42	1.70
	3½	.....	....	....	....	....	....	0.49	0.65	0.81	0.97	1.22	1.46
	4	.....	....	....	....	....	....	....	0.57	0.71	0.85	1.07	1.28
	4½	.....	....	....	....	....	....	....	0.51	0.63	0.76	0.95	1.14
	5	.....	....	....	....	....	....	....	....	0.57	0.68	0.85	1.02
45	1½	.....	0.51	0.61	0.72	0.86	0.98	1.11	1.48	1.85	2.22		
	2	.....	....	....	0.54	0.64	0.74	0.84	1.11	1.39	1.67	2.08	2.50
	2½	.....	....	....	....	0.52	0.59	0.67	0.89	1.11	1.33	1.67	2.00
	3	.....	....	....	....	....	0.49	0.56	0.74	0.93	1.11	1.39	1.67
	3½	.....	....	....	....	....	....	0.48	0.63	0.79	0.95	1.19	1.43
	4	.....	....	....	....	....	....	....	0.56	0.69	0.83	1.04	1.25
	4½	.....	....	....	....	....	....	....	0.49	0.62	0.74	0.93	1.11
	5	.....	....	....	....	....	....	....	....	0.56	0.67	0.83	1.00
46	1½	.....	0.50	0.60	0.71	0.84	0.96	1.09	1.45	1.81	2.17		
	2	.....	....	....	0.53	0.63	0.72	0.82	1.09	1.36	1.63	2.04	2.45
	2½	.....	....	....	....	0.50	0.58	0.65	0.87	1.09	1.30	1.63	1.96
	3	.....	....	....	....	....	0.48	0.54	0.72	0.91	1.09	1.36	1.63
	3½	.....	....	....	....	....	....	....	0.62	0.78	0.93	1.16	1.40
	4	.....	....	....	....	....	....	....	0.54	0.68	0.82	1.02	1.22
	4½	.....	....	....	....	....	....	....	0.48	0.60	0.72	0.91	1.09
	5	.....	....	....	....	....	....	....	....	0.54	0.65	0.82	0.98
47	1½	.....	0.49	0.58	0.69	0.82	0.94	1.07	1.42	1.77	2.13		
	2	.....	....	....	0.52	0.62	0.71	0.80	1.06	1.33	1.60	1.99	2.39
	2½	.....	....	....	....	0.49	0.57	0.64	0.85	1.06	1.28	1.60	1.91
	3	.....	....	....	....	....	....	0.53	0.71	0.89	1.06	1.33	1.60
	3½	.....	....	....	....	....	....	....	0.61	0.76	0.91	1.14	1.37
	4	.....	....	....	....	....	....	....	0.53	0.66	0.80	1.00	1.20
	4½	.....	....	....	....	....	....	....	....	0.59	0.71	0.89	1.06
	5	.....	....	....	....	....	....	....	....	0.53	0.64	0.80	0.96

SPACING AND PERCENTAGES OF COLUMN HOOPING

(Wire gauges are American Steel and Wire Co.'s standard)

Diam. of column	Spacing of hoops, inches	Gauge	2–0	3–0	4–0	5–0	6–0	7–0	Flat bars, inches				
		Diam.	.331	.362	.394	.430	.460	.490	1 × 1/4	1 × 5/16	1½ × 1/4	1½ × 5/16	1½ × 3/8
		Area	.086	.103	.122	.145	.166	.188	.250	.312	.375	.469	.563
48	1½	.....	0.48	0.57	0.68	0.81	0.92	1.04	1.39	1.74	2.08		
	2	.....	....	....	0.51	0.60	0.69	0.78	1.04	1.30	1.56	1.95	2.34
	2½	.....	....	....	....	0.48	0.55	0.63	0.83	1.04	1.25	1.56	1.87
	3	.....	....	....	....	....	....	0.52	0.69	0.87	1.04	1.30	1.56
	3½	.....	....	....	....	....	....	....	0.60	0.74	0.89	1.12	1.34
	4	.....	....	....	....	....	....	....	0.52	0.65	0.78	0.98	1.17
	4½	.....	....	....	....	....	....	....	....	0.58	0.69	0.87	1.04
	5	.....	....	....	....	....	....	....	....	0.52	0.63	0.78	0.94

TABLE OF WEIGHTS, AREAS AND SPACING OF BARS

AREAS OF SQUARE BARS PER FOOT

Diam.	Area	Wt.	Spacing in inches								
			2″	3″	4″	5″	6″	7″	8″	9″	10″
¼	0.0625	0.212	0.37	0.25	0.19	0.15	0.12	0.11	0.09	0.08	0.07
5/16	0.0977	0.332	0.59	0.39	0.29	0.23	0.20	0.17	0.15	0.13	0.12
⅜	0.1406	0.478	0.84	0.56	0.42	0.34	0.28	0.24	0.21	0.19	0.17
7/16	0.1914	0.651	1.15	0.77	0.57	0.46	0.38	0.33	0.29	0.26	0.23
½	0.2500	0.850	1.50	1.00	0.75	0.60	0.50	0.43	0.37	0.33	0.30
9/16	0.3164	1.076	1.90	1.27	0.95	0.76	0.63	0.54	0.47	0.42	0.38
⅝	0.3906	1.328	2.34	1.56	1.17	0.94	0.78	0.67	0.59	0.52	0.47
11/16	0.4727	1.607	2.84	1.89	1.42	1.13	0.95	0.81	0.71	0.63	0.57
¾	0.5625	1.913	3.37	2.25	1.69	1.35	1.12	0.96	0.84	0.75	0.67

AREAS OF DIFFERENT NUMBERS OF SQUARE BARS

Square

Diam.	Area	Wt.	2	3	4	5	6	7	8	9	10
½	0.2500	0.850	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
9/16	0.3164	1.076	0.63	0.95	1.27	1.58	1.90	2.21	2.53	2.85	3.16
⅝	0.3906	1.328	0.78	1.17	1.56	1.95	2.34	2.73	3.12	3.52	3.91
11/16	0.4727	1.607	0.94	1.42	1.89	2.36	2.84	3.31	3.78	4.25	4.73
¾	0.5625	1.913	1.12	1.69	2.25	2.81	3.37	3.94	4.50	5.06	5.62
13/16	0.6602	2.245	1.32	1.98	2.64	3.30	3.96	4.62	5.28	5.94	6.60
⅞	0.7656	2.603	1.53	2.30	3.06	3.83	4.59	5.36	6.12	6.89	7.66
15/16	0.8789	2.988	1.76	2.64	3.52	4.39	5.27	6.15	7.03	7.91	8.79
1	1.0000	3.400	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
1⅛	1.2656	4.303	2.53	3.80	5.06	6.33	7.59	8.86	10.12	11.39	12.66
1¼	1.5625	5.313	3.12	4.69	6.25	7.81	9.37	10.94	12.50	14.06	15.63
1⅜	1.8906	6.428	3.78	5.67	7.56	9.45	11.34	13.23	15.12	17.02	18.91
1½	2.2500	7.650	4.50	6.75	9.00	11.25	13.50	15.75	18.00	20.25	22.50

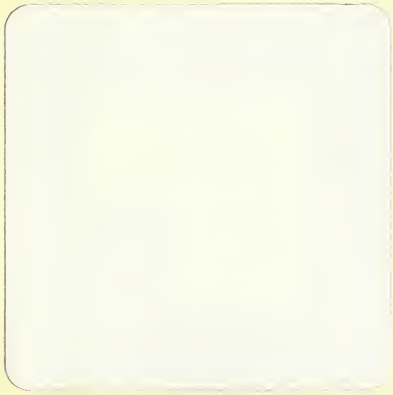
AREAS OF ROUND BARS PER FOOT

Diam.	Area	Wt.	Spacing in inches								
			2″	3″	4″	5″	6″	7″	8″	9″	10″
¼	0.0491	0.167	0.29	0.20	0.15	0.12	0.10	0.08	0.07	0.07	0.06
5/16	0.0767	0.261	0.46	0.31	0.23	0.19	0.15	0.13	0.12	0.10	0.09
⅜	0.1104	0.376	0.66	0.44	0.33	0.26	0.22	0.19	0.17	0.15	0.13
7/16	0.1503	0.511	0.90	0.60	0.45	0.36	0.30	0.26	0.23	0.20	0.18
½	0.1963	0.668	1.18	0.79	0.59	0.47	0.39	0.34	0.29	0.26	0.24
9/16	0.2485	0.845	1.49	0.99	0.75	0.60	0.50	0.43	0.37	0.33	0.30
⅝	0.3068	1.043	1.84	1.23	0.92	0.74	0.62	0.52	0.46	0.41	0.37
11/16	0.3712	1.262	2.23	1.48	1.11	0.89	0.74	0.64	0.56	0.49	0.45
¾	0.4418	1.502	2.65	1.77	1.33	1.06	0.88	0.76	0.66	0.59	0.53

AREAS OF DIFFERENT NUMBERS OF ROUND BARS

Round

Diam.	Area	Wt.	2	3	4	5	6	7	8	9	10
½	0.1963	0.668	0.39	0.59	0.79	0.98	1.18	1.37	1.57	1.77	1.96
9/16	0.2485	0.845	0.50	0.75	0.99	1.24	1.49	1.74	1.99	2.24	2.48
⅝	0.3068	1.043	0.61	0.92	1.23	1.53	1.84	2.15	2.45	2.76	3.07
11/16	0.3712	1.262	0.74	1.11	1.48	1.86	2.23	2.60	2.97	3.34	3.71
¾	0.4418	1.502	0.88	1.33	1.77	2.21	2.65	3.09	3.53	3.98	4.42
13/16	0.5185	1.763	1.04	1.56	2.07	2.59	3.11	3.63	4.15	4.67	5.18
⅞	0.6013	2.044	1.20	1.80	2.41	3.01	3.61	4.21	4.81	5.41	6.01
15/16	0.6903	2.347	1.38	2.07	2.76	3.45	4.14	4.83	5.52	6.21	6.90
1	0.7854	2.670	1.57	2.36	3.14	3.93	4.71	5.50	6.28	7.07	7.85
1⅛	0.9940	3.380	1.99	2.98	3.98	4.97	5.96	6.96	7.95	8.95	9.94
1¼	1.2272	4.172	2.45	3.68	4.91	6.14	7.36	8.59	9.82	11.04	12.27
1⅜	1.4849	5.049	2.97	4.45	5.94	7.42	8.91	10.39	11.88	13.36	14.85
1½	1.7671	6.008	3.53	5.30	7.07	8.84	10.60	12.37	14.14	15.90	17.67



Date Due

GETTY CENTER LIBRARY
3 3125 00017 2136